THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. V. Nº 84—7th YEAR.] LONDON, JANUARY 8, 1856. [Subscription per Ann. { 15s. in Advance. 18s. Credit.

TO GAS COMPANIES.

BOGHEAD CANNEL COAL.—This is the most highly bituminous coal known, and, therefore, peculiarly adapted for mixing with inferior coals in the Manufacture of Gas, for which purpose it is exclusively used. One ton of it yields 15,486 cubic feet of gas, according to Dr. Fyfe's experiments, and in actual working the produce is at least 13,500 feet of the specific gravity of ·775; and a burner, consuming at the rate of 1 cubic foot per hour, gives a light equal to 8¼ spermaceti candles, each consuming 120 grains of sperm per hour. The light yielded by one ton of this coal is equal to that from 1990 lbs. of sperm candles; whereas that from the same quantity of Newcastle Caking Coal is only equal to 420 lbs.; and that from the best Wigan Cannel Coal is only 750 lbs. of sperm candles. It can be shipped at any of the ports in the Frith of Forth or the Clyde.

For terms and other particulars apply to

R. W. KENNARD and Co.,
Sole Agents,
67, Upper Thames-street, London.

TO METER INSPECTORS.

WANTED immediately, a person competent to undertake the entire charge of the Meters belonging to a large Gas Company in the West of England. His duties will comprise the superintendance of the receiving, proving, delivering, inspection and repairing the Meters, and keeping all such records and accounts as are necessary to the obtaining accurate returns in this branch of the business of the Company. Satisfactory testimonials are indispensable. Apply to Mr. BARLOW, Office of this JOURNAL, 3, PARLIAMENT STREET, Westminster.

January 4, 1856.

LOANS ON BONDS.

COMMERCIAL GAS COMPANY.

(Incorporated by Act of Parliament.)

The Directors of the above Company are prepared to receive LOANS on the Company's Bonds for a period of Three, Five, or Seven Years, to replace Bonds falling due.

Interest paid Half-yearly in London. Proposals to be sent to the Secretary,

By Order of the Board,
Stepney, London. GEORGE JAQUES, Secretary.

WANTED immediately, by the Stafford Gas Company, a MANAGER, whose duties will be to conduct the Works and take the General Superintendance of the Company's Business, and who must understand the keeping of accounts by double entry.

Sealed applications to be addressed to the CHAIRMAN of the Directors, Gas Works, STAFFORD, and endorsed "Application for Manager," to be sent in on or before the 15th of January, 1856.

Salary to commence at £130 per annum.

WM. ETCHELLS,
Secretary and Manager.

Board Room, Gas Works, Jan 2, 1856.

COWEN'S PATENT FIRE CLAY RETORTS.

JOS. COWEN and CO.,

BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,

Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS RETORTS and OTHER OBJECTS in FIRE CLAY."

J. C. and Co. have been for many years the most extensive Manufacturers of Fire Clay Retorts in the United Kingdom; and orders for Fire Clay Retorts of all shapes and dimensions, Fire Bricks, and every other article in Fire Clay, are promptly executed at their works as above.

Also, owners of BLAYDON BURN COLLIERY, from which "COWEN'S CANNEL COAL," extensively used in Metropolitan and other Gas Works, and "COWEN'S GARESFIELD COAL," are obtained. From the latter, "COWEN'S GARESFIELD COKE" is made, the superior quality of which is well known.

Coal and Coke Office, Quay-side, NEWCASTLE-ON-TYNE.

JOHN RUSSELL AND CO.,

THE OLD TUBE WORKS,
CHURCH HILL, WEDNESBURY,
STAFFORDSHIRE,
and 69, UPPER THAMES STREET, LONDON,

Original Manufacturers of Wrought-Iron Gas Tubes, and Holders of the present Patents; Inventors and First Makers of LAP-WELDED FLUES for Boilers; have been awarded the FIRST PRIZE in the Great Exhibition of Paris for these Articles.

J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water, and the largest Orders may be executed in a few days.

The eminent Mr. Perkins confines himself altogether to the use of John Russell and Co.'s Tubes in High-Pressure Patents.

Gun Metal, and all other kinds of Cocks, Stocks, Dies, and Taps, Galvanised Tubes, &c.

N.B. All Goods thoroughly Tested before sent out, and Warranted.

WANTED, a Second-hand Cast- IRON TANK, from 50 to 60 feet diameter, and from 14 to 20 feet deep. Letters to be addressed to the SECRETARY of the Isle of Thanet Gas Works, MARGATE.

CANNEL COAL.

RAMSAY'S NEWCASTLE CANNEL was discovered by the Advertiser in 1818. Cannel Coal was then little used in London: after surmounting much opposition, it has become the principal Cannel Coal used in the Metropolis, and has greatly assisted in improving the London gas. Its joint products of gas of high illuminating power, and coke of good quality, make it one of the most economical coals known. It is used by all the London Gas Companies, as well as by many Provincial and Foreign. The Crystal Palace was lighted from it in 1851, and the Post-office, Bank, and *Times* Office, are at present.

FIRE-CLAY RETORTS.

FIRE-BRICKS of all descriptions. Manufactory established in 1801.

RAMSAY'S GARESFIELD COAL and COKE.

Bone and Artificial Manures of all kinds.

Address G. H. RAMSAY, Offices, Broad-chare, Newcastle-on-Tyne.

April 27, 1854.

TO GAS COMPANIES, ENGINEERS, AND MERCHANTS.

EDWIN DIXON,

WROUGHT-IRON TUBE WORKS,
WOLVERHAMPTON,

begs with the utmost confidence to solicit the order of Gas Companies, and persons using or selling Gas Tubes. Having for a long period supplied the largest Gas Companies and Consumers in the United Kingdom and the Continent with unvarying approbation, and almost exclusively the Local Boards of Health under Government Engineers, with Galvanised Iron Tubes and Connections, it has become an inducement to make such facts known.

Large Stock always being on hand, orders of any magnitude, from 10 to 100,000 feet, are executed promptly, and carefully tested by powerful hydraulic pressure before leaving the Works.

Boiler Tubes, Core Bars, Hollow Spindles, and Hydraulic Press Pipes, to resist 5000 lb. to the square inch, made on the shortest notice.

The only Prize Medal of the Great Exhibition, 1851, awarded.

TO GAS CONTRACTORS, ENGINEERS, AND OTHERS.

TO be Let on Lease, for 3, 5, or 7 years, on liberal terms, in a flourishing Market Town 80 miles west of London, the GAS-WORKS of an Incorporated Company, in full operation and complete repair; comprising a full Plant, Dwelling-House, and Stores for 400 Tons of Coals, with conveniences for carrying on a large Coal and Coke Trade. A Lessee, being his own Manager, with a small capital, will find this a most advantageous offer. TENDERS also may be sent by any parties desirous to purchase these Freehold Works. Possession may be given on the 5th of April next. Address A. B., Mr. T. Waller, 9, Lilly-pot Lane, St. Martin's-le-Grand. Principals only can be treated with.

JAMES RUSSELL AND SONS,

WEDNESBURY, STAFFORDSHIRE, and 81, UPPER GROUND STREET, BLACKFRIARS, LONDON

PATENTEES, INVENTORS, AND FIRST MAKERS OF

WROUGHT-IRON GAS TUBING,

commencing from the *earliest* introduction of Gas Lighting into this country.

Manufacturers of every size and description of Wrought-iron Tubes and Fittings, from one-eighth up to seven-inch internal diameter, for Gas, Steam, or Water.

PATENTEES AND MANUFACTURERS OF THE

LAP-WELDED FLUES,

for Marine, Locomotive, and Stationary Boilers.
Inventors and Manufacturers of

IMPROVED STEAM AND GAS COCKS,

in Iron or Gun Metal, from three-eighths to six-inch bore. Manufacturers of every description of hand-screwing

STOCKS, DIES, AND TAPS,

for Gasfitters and Engineering purposes.

Manufacturers of Coils, for hot water and other purposes; Casing of all sizes, with flush joints, for Well-sinkers; Blasting Tubes; Buffer Tubes for Railway Carriages; Tubes for Roller Beams; Spindles, Shafts, Pendulums, Hydraulic Presses, Core Bars, Steam Gauges, &c. &c.

JAMES RUSSELL and SONS beg to call the attention of Engineers, Builders, Water Companies, and others, to their

PATENT ENAMELLED TUBES,

which preserve water or other liquids conveyed by them in a perfectly limpid condition; whilst the Enamel itself is as pure as the finest Porcelain, possessing the rare recommendation of being entirely free from any noxious ingredient in its composition.

Lists, Estimates, &c. &c., forwarded on application; orders, from 10 to 100,000 feet of gas tube, executed at twelve hours' notice if required; and quality may be safely relied upon, as all goods are most carefully tested before leaving the Works.

JAMES RUSSELL and SONS have great pleasure in calling attention to the annexed award:—

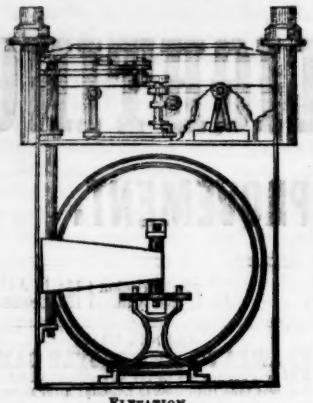
"EXHIBITION OF THE INDUSTRY OF ALL NATIONS, NEW YORK.

"Office: No. 6, Charing-cross, London, April 6, 1854.

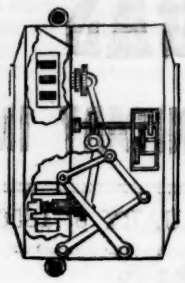
"Gentlemen,—I have much pleasure in informing you that the Jury has awarded to your firm 'HONOURABLE MENTION FOR LAP-WELDED IRON TUBES.' You are at full liberty, if you deem it likely to promote your mercantile advantage, to affix to these articles, during the season 1854, a card whereon this Award is printed, and also your prices, with name of agent, &c.—I am, gentlemen, your obedient servant,

"JOHN H. BOHN, Secretary.

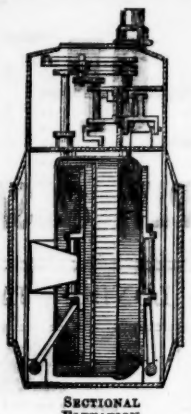
"Messrs. JAMES RUSSELL and SONS, Wednesbury, STAFFORDSHIRE."



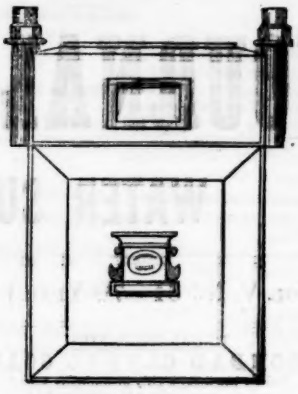
ELEVATION, with Front removed and Valve-box broken.



PLAN. Valve-box broken away to show Valves.



SECTIONAL ELEVATION.



FRONT VIEW.

W. J. WARNER'S PATENT DRY GAS METER.

THOMAS EDGE

begs to inform Gas Companies and Consumers that he has become the Proprietor of the above Patent; and that, having made arrangements for the Manufacture of the same on an extensive scale, he is prepared to supply all sizes in any quantities.

The advantages of this Meter have been recognised by the highest authorities, and those who have tested and used them.

The most obvious improvements are—

1. The movements of the Valve Cover at its base, so that no deposition on the face of the Valve can cause the Cover to tilt, and thus allow the Gas to pass without registering.
2. The protection of the whole of the Machinery in the upper chamber from the action of the Gas, which has never before been accomplished.
3. Greater simplicity, and a less amount of flexible material in the Diaphragms than in any other make.

These Meters, and also the Patent Lever Valve Wet Meters can have either the Common Index or Patent Indicator attached; and are manufactured, with Station Meters, Governors, Pressure Registers, Gauges, Gas Fittings, and every description of Gas Apparatus, at the Works, Great Peter-street, WESTMINSTER.

CITY OFFICE, and Depôt for Meters, Pipe Barrel, and Fittings, 9, WALBROOK, Mansion-house.

FIRE-CLAY RETORTS.

JOHN SWARBRICK,

MANUFACTURER OF PATENT COMPOSITION CLAY RETORTS,

FIRE BRICKS OF EVERY DESCRIPTION, SHAPE, AND SIZE, &c. &c.

HIGHER EANAM, BLACKBURN, LANCASHIRE.

These RETORTS are generally used in the Gas-works of Preston, Accrington, Bury, Heywood, Middleton, Rochdale, Ratcliffe; the Mills of Messrs. Horrocks, Miller, and Co., Preston, &c. &c., and are unequalled in having afforded general satisfaction to those who have given these Retorts a trial.

To meet the increasing demand, the Works at Little Harwood have been greatly enlarged; and Gas Engineers who may favour with an Order may rely with confidence on their being promptly supplied with an article not to be surpassed in finish or durability.

PRICES MODERATE.

ALEXANDER WRIGHT,

GAS ENGINEER, MANUFACTURER OF GAS METERS, GOVERNORS,

AND ALL DESCRIPTION OF GAS APPARATUS,

55, MILLBANK STREET, WESTMINSTER.

CONSUMERS' METERS at the List Price, with a Liberal Discount to Wholesale Purchasers.

NEW INSTRUMENTS FOR THE USE OF GAS COMPANIES.

THOMPSON'S BROMINE TEST.

Apparatus, including Graduated Tube and Equalising Cylinder, £1. 1s.

Bromine, 3s. per ounce.

AN APPARATUS for TESTING the PRESENCE of BISULPHURET of CARBON in GAS.

Cost of Apparatus, £2. 2s.

AN APPARATUS FOR DETERMINING

THE HEATING POWER OF SAMPLES OF COAL and OTHER DESCRIPTION OF FUEL,

INVENTED BY LEWIS THOMPSON, Esq., M.R.C.S.,

Complete Apparatus, in Polished Mahogany Travelling Case . . £5 5 0
In ordinary Packing Case 3 3 0

WITH INSTRUCTIONS FOR THE EXPERIMENT.

A REGISTERING PRESSURE GAUGE.

It is important to Gas Companies to know the pressure at various parts of their districts during the successive hours of the night, for the better regulation of their initial pressure at the Works. This compact apparatus, capable of being placed in a space of about one foot cube, is intended to supply this information.

Net Price, £8. Glass Shade, 10s. extra.

STATION METERS, PRESSURE GAUGES, PHOTOMETERS, SPECIFIC GRAVITY APPARATUS, &c.

JOURNAL OF GAS LIGHTING NEWSPAPER

CONTENTS.

	PAGE
Leading Articles:—	
Address to our Readers	3
On the Application of the Mechanical Means of Engineering Science to Sanitary Improvement	4
Principles of Sanitary Improvement	5
Municipal Notions of Competency and Recompense	8
The London Water Supply	8
Circular to Gas Companies	8
Communicated Articles:—	
Examination of the Process of Making Gas from Coal and from Water	9
Value of Boghead Charcoal as a Deodorising Agent	11
Correspondence:—	
A Suggestion for the Management of Retorts	11
Register of New Patents:—	
Teague's Improvements in High and Low Pressure Engines	11
Young's Improvement in Gas Regulators	11
Provisional Protections	11
Notices of Intention to Proceed	12
Inventions Protected for Six Months	12
Miscellaneous News:—	
Analysis of New River Water	12
The Iron Trade of 1855	12
Detection of Sulphuretted Hydrogen and Bisulphide of Carbon in Coal-gas	13
Meeting of the Metropolitan Board of Works	24
Deptford Arbitration	21
Brecon	21
Constantinople	21
Marseilles	21
Price Current	21

TO CORRESPONDENTS.

J. W. M.—*The Metropolitan Gas Works consumed about* 600,000 *tons of coal in the past year, and produced nearly* 4800 *million cubic feet of gas. The total length of mains in action is not accurately known.*

A READER (Lancaster), *will find some data as to the dimensions of the pipes for interior fittings at page* 117, Vol. I., *of the Journal. Smaller pipes may be used for cannel gas.*

G. L.—*The standard of illuminating power adopted in France is a Carcel lamp, burning* 42 *grammes of colza (rape) oil per hour. The experiments upon which this standard is based were made by Péclet, and are quoted in Dr. Ure's Dictionary of Arts and Manufactures, edition of* 1853, *under the head of "Cost of Illumination." The Paris standard is equivalent to* 8¼ 120-*grain sperm candles for the* 5-*feet burner.*

J. C.—*Present a memorial to the Court of Common Council, setting forth your grievances. There are some independent men in the body who will, no doubt, take the matter up, and either dismiss the conceited official or restrict his labours to the performance of his legitimate duties.*

VINDEX.—*The praise or the censure of a publication which can be influenced by an order for a few meters given to a particular manufacturer, is equally esteemed by those who are acquainted with its unprincipled character. The spiteful spirit of its first notices of the Imperial, the Chartered, and several other Gas Companies, and the laudatory tone of its later articles on these bodies, are sufficient indications of its inconsistency and servility.*

NOTICES.

Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

This JOURNAL has been duly registered at the General Post Office for transmission abroad.

Communications and orders for Advertisements to be addressed to the Editor, No. 3, Parliament-street, Westminster.

THE JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, JANUARY 8, 1856.

ADDRESS TO OUR READERS.

IT will be observed that in the present number of our JOURNAL, which is the commencement of a new series, to be published at shorter intervals than hitherto, there is an addition to the title, embracing Water Supply and Sanitary Improvement among the topics to which attention will in future be specially directed. This change has become desirable, and almost necessary, from the closer combination of the subjects of gas lighting, sewerage, water supply, and the public health, by Sir Benjamin Hall's act of last session for the future government of the metropolis.

When the JOURNAL was originally founded, we proposed to treat exclusively of matters connected with the supply of gas; but it was soon found that the intimate connection of gas lighting with other social improvements involved the necessity of considering those correlative questions. The erroneous representations, for instance, of the prejudicial effects of gas lighting, and the attacks made on gas companies, led us involuntarily into the discussion of sanitary measures, with which the water supply and the drainage of towns are also intimately connected. The new system of local government of the metropolis, by which all those matters are to be regulated, presents a most favourable opportunity for making the change, and for enlarging the scope of observation, which we have for some time contemplated. For the future, therefore, a portion of our space will be devoted to the proceedings of the new governing body relative to water supply, drainage, and other sanitary measures, as well as to gas lighting.

The great importance of the act for the government of the metropolis is yet but imperfectly appreciated. Though its progress through Parliament was not marked by any excitement, and its clauses were agreed to without much opposition, yet in practical effect this nominally local measure is a greater social revolution than the Reform Act itself. The latter, indeed, greatly extended the privilege of voting for representatives in the great council of the nation, and so far extended the principle of self-government; but the comparative insignificance of each member among so large an assemblage, and the number of counteracting influences directing and governing the acts of the House of Commons, diminish the real operation of that principle to a small quantity. By Sir B. Hall's act, however, the principle of self-government is not only freely admitted, but it is carried into practical effect by the appointment of a governing body chosen directly by the people, and sufficiently limited to be under the supervision and, in a great degree, under the control of public opinion. The measure, it is true, is but of local application, yet it comprises within its range the most populous and the wealthiest district in the world; and when it is considered that the lives and fortunes of nearly three millions of souls are entrusted to the care of a board elected by the inhabitants from among themselves, the new system of government, though local in name and comparatively limited in extent, assumes a high degree of national importance, and the governing body has undertaken a responsibility inferior only to that of Ministers of the Crown.

The opposing systems of centralisation and of self-government are now placed fairly on their trial. The advocates of the former are numerous and powerful, and they would not regret to see the failure of a measure which sets at defiance their favourite notions of centralising the functions of government in a few departments appointed and regulated without interference by the people; but we earnestly hope that the members of the Metropolitan Board of Works elected by the popular voice will discharge the important duties committed to them in a manner to prove that the system is sound. If they should fail in their honest endeavours to carry out the work they have before them, or should give rise to the suspicion that they are guided by other motives than the consideration of the public good, they would most effectually damage the cause of self-government, and retard its progress for an indefinite time. In all public bodies there will be some of greater mental vigour than the rest, who gain ascendancy in their deliberations; and there is always danger that the influence of such men may be exercised in procuring the adoption of fallacious and deceptive crotchets, or in promoting individual interests. We must confess that it is not without considerable anxiety that we observe among the members of the Board of Works some who are pledged to opinions that we consider to be unsound, and likely, if carried into effect, to be followed by disastrous consequences. We hope, indeed, that those gentlemen, now that they are invested with serious responsibility, will hesitate in recommending for adoption plans which are at variance with the established laws of science; but should they be so rash as to attempt the application of such crude notions, there is the satisfaction of knowing that the deliberations of the board will be open to criticism, and that the public voice by which the members have been appointed must, if decidedly expressed, have influence on their decisions. An additional and important duty, therefore, devolves on the public press in watching carefully the deliberations of the new metropolitan government, in reporting their proceedings, and in passing judgment on their actions. We shall do our best to fulfil this part of our duty. To enable us to do so more effectually, we have permanently increased the times of publication of our JOURNAL, so that, without materially diminishing the space usually devoted to the subject of gas lighting, we might bestow adequate attention on the questions of water supply, drainage, and sanitary reform.

We have ever advocated the cause of local self-government as the only system by which all our institutions can escape being swallowed up by the centralising principle, which finds favour in high places, and we have therefore watched with great interest the movements of the recently initiated body. So far as they have gone, they have given satisfaction. It would afford us sincere pleasure should they continue to do so, and that we might thus be able to support the measures they adopt when bringing into practical operation the great powers placed at their command. We shall examine them closely and anxiously with a view to praise, if praise can be fairly awarded, and with determination to expose and to severely condemn any measure that indicates a neglect or sacrifice of public interest, or a departure from sound and established principles. Considering the importance attached to the first meetings of the the new metropolitan board, we have enlarged the present number, for the purpose of giving a full report of their proceedings; and should our endeavours to provide a vehicle for the more extensive diffusion of information on the subjects we undertake to treat meet with the success which we confidently anticipate, we have it in contemplation to publish the JOURNAL every week, instead of every fortnight, *without any increase in the subscription.*

ON THE APPLICATION OF THE MECHANICAL MEANS OF ENGINEERING SCIENCE TO SANITARY IMPROVEMENT.

IN commencing a publication destined to treat in a calm, unprejudiced, and philosophical manner the numerous details which affect the state of public health, it appears advisable to review the practical means we possess for carrying into execution improvements suggested by the abstract and theoretical observations of physiologists. Much confusion has lately arisen, and it is to be feared that serious loss has been incurred, in consequence of the very incorrect opinions which have been propounded upon this subject; and the result of the disappointment and annoyance following upon the exaggerated hopes of parties credulous enough to believe that names and assertions prove facts, has, in too many cases, been such as to retard the progress of a movement in itself of the highest importance to the well-being of society. It becomes, therefore, a matter of paramount necessity that correct opinions should prevail—that the public should really possess some clear and simple statement of what it is possible to effect in the way of sanitary improvement, with due regard to economy. The latter consideration has been paraded in many recent official publications; but it must always be understood that we ourselves attach more value to the consideration of an ultimate than we do to that of a temporary economy; and, moreover, we are anxious to state *in limine*, that we hold it to be one of the most important principles of engineering, as it is of all political science, that the application of every general law may at times require to be modified so as to meet exceptional local conditions.

Now the engineering and architectural works considered at the present day to be immediately connected with the health of large urban populations, are those which bear upon the construction of dwellings, the drainage and paving of the sites of towns, the removal of the various descriptions of offal, and the water supply.

The study of the sanitary laws which are involved in the construction of buildings intended for human habitation has hardly, we think, been treated with the attention it merits, or at least the public authorities who have lately undertaken to correct the evils of past neglect of sanitary laws have avoided dealing with this very delicate question. In the parts of cities, and in the houses inhabited by the wealthier classes of society, no practical evils can be said to have arisen from the absence of any philosophical code of sanitary construction, or from the absence of intervention of public authorities in matters connected with their construction or their internal disposition, and the consideration of this part of the subject may at once be dismissed; but, unfortunately, the habitations of the very poor—of the classes, in fact, who cannot take care of themselves—are abandoned to the most ignorant empiricism, or to the most exacting avarice; and it is not too much to say that the improper construction, the bad ventilation, and the accumulation of nuisances to be observed in the poorer portions of our cities, are amongst the principal causes of the disease, mortality, and perhaps we may add, vice, which so fearfully characterise them. Laudable efforts have been made of late years by the various societies for improving the dwellings of our labouring classes, and in many cases the results which have attended their labours have been of the most satisfactory nature. The only subject for regret in consideing their operations is, that they seem to build model lodgings for model people, and to expect a regularity and propriety of behaviour from those they serve which can hardly be expected from a class long depressed by the evils and discomforts of their position. Besides this, it is to be feared that the bulk of our town population consists of those who from carelessness and improvidence rarely rise above the condition of daily labourers. At the present rates of wages, this class cannot afford to pay the rents usually required for the model lodgings, and it is therefore left in its former state of neglect and misery, so far as its dwellings are concerned. Whatever improvements may be made in other branches of sanitary science, it appears to us that little apparent good can arise until the depressing influence of the dwellings of the poor be attenuated, or until they are brought to feel the necessity for, and practice the observance of, ordinary dencency and cleanliness. This cannot take place so long as the houses they inhabit are over-crowded—so long as their rooms are devoid of means of ventilation, the streets and yards around them are filthy and neglected, or the means of removing rubbish or offal do not exist. The state of things said to have existed in Wild's Court, Drury Lane—absurdly exaggerated as no doubt it was—still proves, that if it be desired to keep down the average rate of mortality in our towns, very energetic measures are required to educate the poor in habits of cleanliness and self-respect, and to provide for them a better class of dwellings. This is no solitary instance; nor can Wild's Court claim a bad pre-eminence over many other parts of London, or London itself over thousands of other cities. Shoreditch, Westminster, Southwark, Whitechapel, are as foul as Drury Lane. Paris, Rouen, Lille, New York, Boston, Brussels, Madrid, or Vienna could show scenes as revolting, and dwellings as ill adapted to human habitation, as our own great metropolis. We cannot in this notice enter into any detailed statement of our views upon this all-important subject; but emphatically do we contend, that until the evils we have signalled are remedied, it will be in vain to expect a serious or a permanent improvement in our average sanitary condition. If the returns from the Registrar General's Office were published in a form to be of any useful value, or in a manner we are entitled to expect from so costly an organisation, these facts would be more painfully evident; and bitterly do we regret that there are no trustworthy public documents in existence which should enable us to trace the effects of the neglected condition of the poorer dwellings upon the general sanitary state of our towns.

Be this as it may, professional men have at their disposal, at the present day, mechanical means such as are sufficient to ensure the observance of all the ordinarily received sanitary laws it is necessary to take into account in the construction of dwellings. These laws are very simple, and may, indeed, be stated to consist almost exclusively in rendering the enclosed space as independent as possible of the variations of external temperature, or other meteorological causes; in securing ample light and ventilation; in the provision of means for obtaining artificial heat when required, and the use of materials which should not absorb or retain unhealthy exhalations. Theoretical writers, like *Amicus* of the *Times*, dwell upon the slowness with which our builders adopt the use of wrought-iron and of fire-proof construction; and to a certain extent we agree with him, that it would be desirable that such improvements should be carried into effect. It is a reproach to our social system that London houses are remarkably combustible, and the very materials employed which render them so are also objectionable in the dwellings of the very poor, on account of their capacity of absorbing miasma. But it is to be feared that the system of building-leases has much to do with this question; for he who is obliged to calculate upon sinking the amount of his outlay in a limited period, is too often induced to consider the first cost rather than the permanent quality of his buildings. However desirable the introduction of fire-proof floors may be, it hardly is possible that they can, for some time at least, be generally used in London. It is possible, however, to build houses in such wise that the rooms shall have proper dimensions in reference to the number of people they are to contain; that they shall have windows, doors, fireplaces, or other openings which shall suffice for light, heat, and ventilation; that no dwelling-rooms shall exist in damp cellars; that the

staircases, passages, court-yards, shall be light and airy; that the refuse of the various tenants shall be deposited so as not to contaminate the air they breathe; and we believe that it is the duty of society at large, of the body politic, to see that the landlords who undertake to meet the requirements of those who cannot protect themselves should do so in a manner which should not be injurious to the latter. In the meantime, we would seriously ask whether much of the disease and illness it is now the fashion to attribute to bad sewerage, or bad water supply, ought not rather to be attributed to bad houses? and perhaps also we may add, that one of the most effectual means of sanitary improvement would consist in the improvement of the education of the poorer classes, so as to enable them to appreciate the practical advantages of cleanliness.

It may be objected to our opinions with respect to the necessity for public control with respect to the details of house construction, that they could not be carried into execution without interfering with the rights of private property; but this objection ceases to apply when the drainage and paving of the sites of towns are considered. At all times the effectual execution of works of this description has been allowed to constitute one of the most important branches of the municipal duties, and the civilised nations of antiquity attached as much importance to its execution as any modern states. Generally speaking, also, the distribution of towns—that is to say, the direction and dimensions of the streets, and the open spaces round the houses—has been included in the duties of what may be called the "edility."

At present there is a tendency to overlook the necessity for a strict attention to the drainage of the subsoil of towns, and to concentrate all the efforts, all the outlay, upon the removal of the solid and liquid refuse of the houses; thus falling into the opposite error to that of our predecessors, who appear only to have provided for the drainage, without making any provision for the removal of sewerage, as we now understand the word. Impermeable pipe drains, such as are proposed exclusively to be used both for houses and streets, do not and cannot act to relieve the subsoil of the waters which filter through them, or which may be supplied by the percolation of rain-water falling upon higher ground. There are some towns in which the latter source of exhalations is a very serious source of suffering and illness; and we suspect that this remark may be applied to such of them as are situated upon the outcrop of permeable strata, at a lower level than the entrance of the underground waters. Hitchin, Ipswich, Croydon, Rouen, some parts of Southampton and of Paris, are placed under these circumstances; and it is to be remarked, that where in those towns the sewerage is executed so as to allow the land waters to evaporate, instead of carrying them off below the surface level, there fevers of a typhoid character are rife. We believe that one of the greatest mistakes committed at Croydon consisted precisely in the neglect of the subsoil drainage; and we are also convinced that it is impossible to dwell too seriously upon the importance of constructing at least the arterial sewers of a town of such materials as shall allow the land waters to escape by them rather than by evaporation. It is, nevertheless, essential to treat this question in a philosophic spirit, and to avoid the assertion of any inflexible law. The subsoil of every town has its peculiarities, and the measures to be adopted in any particular case must depend upon the local difficulties to be overcome. We mean, that very possibly towns may exist in which it is not necessary to take into account the subsoil drainage, as at Bangor; and there impermeable sewers are unquestionably the most advisable. But, as a general rule, it will be found that it is as essential to execute the one class of works as the other—nay, it happens that, in large centres of population, certain chemical reactions are always at work to affect the composition of the exposed soil, and therefore to communicate qualities to the vapours which rise from it, and which, in their turn, must depend for their greater or less degree of noxiousness upon the character of these reactions. In this case, again, the inquirer is stopped in his attempt to discover any natural law by the utter worthlessness of the returns of the Registrar General. Neither in the weekly tables, nor in the annual reports, is an attempt made to trace the connection between certain forms of disease and the geological constitution, or the hydrographical characteristics, of the soil. Yet the periodical recurrence of typhoid epidemics, and the singular permanent excess of infantile mortality in some districts, are subjects even more worthy of investigation than the laws affecting the distribution of cholera; for the latter only exercises its ravages occasionally—the other diseases are always at work. That the typhoid epidemics at times become as fearful inflictions as even the cholera itself, in badly drained districts, is proved by the fact that in 1853 no less than 4611 persons were treated for that disease in the public hospitals of Paris during the first five months of the year, and the average mortality was not less than 22 per cent. of the people there treated.

No doubt the advocates of the exclusive use of impermeable pipe-sewers would admit the necessity for attending to the subsoil drainage of towns, and would propose that works should be undertaken for the purpose of carrying it into effect. The practical evil they have, however, inflicted consists in having, latterly at least, kept it out of sight, and thus rendered necessary the execution of double works in situations where, by a judicious combination of impermeable house sewerage-pipe and partially permeable main sewers, one set of sewers would have sufficed. They have, in fact, fallen into the usual error of abstract theorists: they have not taken into account the accidental circumstances which must always affect the practical application of general laws.

PRINCIPLES OF SANITARY IMPROVEMENT.

For good or for evil, the metropolis has now reached one of those epochs which must long stand prominently forward in the history of sanitary science as a beacon to guide or a warn-to deter: the health of all London lies in the scale, and accident holds the balance. Judging by the past, Nature has said, "Where man is, disease shall be." An act of Parliament now says, "Where man is, health shall be." The circumstances of the contest are clearly indicated, and time only can decide on which side victory shall rest. Other times and other nations have witnessed the growth and decay of scientific inquiries into the origin of disease, and under various names we have seen boards of health and sanitary commissioners "waste their sweets upon the desert air" with no better conclusion than that of the tale of "Rasselas," which has no conclusion. Again, there have been amiable enthusiasts who have dabbled in mud and mire without end or limit, and place-hunters who have wormed their way through sewer and cesspool, like Californian diggers in search of an auriferous formation; but by neither one nor the other has the hygienic condition of this great city been sensibly affected. Disease comes as heretofore and claims his victim; Cholera rises and takes his tithe uninterrupted of any man. The origin of these visitations is still as deeply hidden as ever in Nature's secret repository. Agreement upon the subject there has been none, neither as regards data, facts, nor conclusions; whilst of wordy disputation and literary controversy there has been more than enough to disgust the common sense of every man in Great Britain.

Now, however, we have happily arrived at something like a parliamentary millennium—a legislative union—which is to create an army of parochial combatants duly supplied with money, science, and everything fit to break down the fortifications of Disease, eradicate the stronghold of Pestilence, and set Death himself at defiance, till the arrival of that eventful period when man "yields his breath to Time alone and mortal custom;" nay, perhaps in this we are admitting too much, for the bald-headed gentleman's scythe is to be blunted, his hour-glass enlarged, and, if necessary, the very shears of Fate removed from the benumbed fingers of Atropos. "Old Parr" will soon cease to be called "old," and Henry Jenkins be looked upon as one who "died, poor youth! at the early age of 147."

Seriously speaking, however, the hygienic movement now in progress throughout the metropolis will probably turn out to be one of the most important questions of the age we live in—a question before which, in the future annals of human nature, even the blood-stained records of the Crimea must "hide their diminished heads." But this will entirely depend upon the mode in which the subject is treated: if, as has been the past practice, we are to proceed upon a synthetical system, which relies upon analogy, and takes the resemblance of an object for the object itself, then, no matter by whom supported or at what cost maintained, this system must end in failure and disgrace. The cause and origin of disease in human beings have evidently no analogy with any of the common operations of nature: the principle of vitality has never yet been elucidated, nor its "*modus operandi*" disclosed to us. "Some," said the late celebrated Abernethy, "will tell you that the stomach is a mill, some that it is a laboratory, and some that it is a soup-

kitchen; but, for my part, I believe that a stomach is a stomach, and that 's all I know about it." The honesty of this admission is surpassed only by its enduring truth, coming, as this did, from the lips of a man who could afford to say, "I do not know." And where is he of the present day who could give any other reply, not in respect to this alone, but to every other question in which the action of life is concerned? Yet, again, where is he who, like Abernethy, dare thus tell the truth? He is nowhere. Society is beset by pretenders—mere quacks—who "for every why have got a wherefore," and realise a handsome picking out of the fears and ignorant prejudices of the public. To individuals of this class nothing presents any difficulty, except an admission of ignorance; and the more complex the problem, the more facile in their hands becomes the solution. The jargon of science is used as the "stalking-horse" of imposture, and serves to increase the obscurity of explanations purposely meant to be unintelligible. This is the class which has hitherto retarded the progress of sanitary improvement, and the class most to be feared in respect to its future development. With no other than sentiments of esteem for the gentlemen who have been elected as members of the Metropolitan District Board, we must be permitted to doubt their powers of discrimination as regards the choice of the individuals who are to fill the office of medical inspectors. Something will be given to private friendships—something held back from private pique: the clamour of the noisy busybody who haunts the vestry-room will take precedence of the silent claims of the studious investigator; and with, no doubt, every desire to do well, there is the greatest possible chance that they will in many cases elect the most unfit of all the applicants into the important position of medical officer to the district. It would be, indeed, no easy matter for the entire body of the Colleges of Physicians and Surgeons to make proper elections, and therefore it is certainly expecting too much to hope that ordinary or non-professional individuals can realise more than a chance issue—a mere cast of the die.

With a view, however, to aid, as far as we are able, in securing something like competence, to the exclusion of mere parish popularity and influence, we will enter into a brief detail of the facts at present known in regard to the origin and cure of diseases—of those kinds which are most obviously within the limits of observation and remedial treatment: thus a basis will be established that may serve to guide us from the known to the unknown; and by which, even if it should not always serve to distinguish real talent, ignorance and imposture may, nevertheless, generally be detected. The first thing which strikes us in examining the origin of such diseases as are best understood at the present moment is, the almost imperceptibly minute quantity of matter through which the morbific agent produces its effect. Instances of this kind are observable in the common processes of vaccination and inoculation, where a quantity of material, not weighing perhaps the $\frac{1}{100}$th of a grain, and great part of which is wasted during the operation, nevertheless is found capable of imparting a specific disease, which, in the case of inoculation, not unfrequently leads to the destruction of life itself. Here, then, we have an example of the introduction into the system of an agent which must possess or generate an intense morbific power; and the only question for the philosophical inquirer is to ascertain, if he can, whether this power is originally possessed, or merely generated by the matter thus applied. We know that the venomous bite of some serpents takes effect almost immediately, and therefore we regard it as a direct poison; but we also know that the bite of a rabid dog is not manifested until several weeks or months have passed, and therefore this would seem to be an indirect poison; or, in other words, a substance which, though not poisonous in itself, is capable, when taken into the circulation, of generating a poison, as yeast generates alcohol from sugar. Viewed in this light, the vaccine matter and that of smallpox are indirect poisons, which require for their development certain conditions and materials not contained within themselves—a view completely borne out by the recognised facts of their application. Thus both vaccination and inoculation repeatedly fail to produce any effect in peculiar states of the human economy; but no such indifference or resisting power has ever been noticed with respect to the bite of a poisonous serpent: the result is uniform. Consequently we must learn to draw a wide distinction betwixt poisons properly so called, or poisons *per se*, and those which require in the human body the existence of certain materials and conditions for the formation of poisons, and to which the human system itself may be said to contribute at least one-half. Take, for instance, the case of a number of seemingly healthy individuals who may be required to sleep in a marshy or aguish district, who are all equally exposed to the action of "marsh miasmata;" at the end of ten or twelve days some of these will be found as healthy as at first, whilst others will begin to suffer from headache of a peculiar kind, and ultimately periodical shivering, burning, and sweating fits will ensue, with all the remarkable regularity and precision of the ague. Yet all have not suffered; and the agent, which we have called "marsh miasma," is totally intangible to our senses—without colour, without smell, invisible, and we might even say not occupying space; for the most careful analysis of the air of an affected or aguish district does not differ from that of a perfectly healthy one. Nor is the occasional destruction of this marsh poison less surprising than its origin; thus, when it seems to have taken full possession of the whole human body, and by the violence of its attacks to threaten the very existence of the sufferer, a quantity of arsenic, not perhaps exceeding one-quarter of a grain, will instantly arrest its effects, and restore the patient to perfect health.

Here, then, begins the grand difficulty in every inquiry into the origin of disease; and here resides the danger of giving scope to dogmatic theorists and dreaming speculators, who, ignorant even of their own ignorance, blindly rush at a conclusion, and crush beneath their feet those natural indications which might have guided a more candid inquirer into the path of truth.

We have seen that indirect poisons are frequently of the most inert and simple character, and that their effects are capable of being arrested or prevented by peculiarities of constitution too trifling to come within the cognisance of medical science. A child, for instance—and this is no uncommon case—is found to resist the repeated application of vaccine matter; but, being removed to another locality, immediately succumbs to the first attempt. Again, two children—as A and B—are seriously afflicted with hooping-cough, but in different localities; let a reciprocal exchange of children take place—let A replace B, and B replace A—when both will recover without farther trouble. The more we investigate the origin of disease, the more mysterious the subject becomes, and the more contemptible our present knowledge of it appears. Above all, therefore, let that portion of the medical profession be avoided which has already adopted an opinion upon the origin and prevention of disease. What we want are an immense number of unprejudiced observers, capable of appreciating all the phenomena of nature; and there is no particular reason why they should possess any remarkable amount of medical knowledge. We require plain unbiassed facts, and have no wish any longer to view this part of natural philosophy through the distorting medium of a professional eye-glass.

For the same reason we disconnect our present remarks from all questions of sewage and ventilation—these at best are but small parts of the large whole which now occupies our attention; the great question of what causes disease will remain exactly where it was when all London shall have been sewered like a rabbit-warren and ventilated like a windmill; nay, it is just as likely that all this sewering and ventilation may do harm as that they may do good. We have pointed out how small a quantity of arsenic will at times arrest a dangerous ague, and who knows whether what are very prematurely called deadly gases, unwholesome vapours, and so forth, may not be really useful in warding off other and more fatal emanations?

Until something better is established in the shape of positive information, we shall do well to move slowly in the direction which legislative expediency, rather than sound philosophy, now forces upon our attention; and beyond all things it is requisite that the medical officers appointed to report upon the condition of the several districts shall be men unprejudiced and uncompromised by any bias of party or personal feeling in reference to sanitary matters. If facts exist which tend to show that fever, cholera, or indeed any specific disease, is capable of being generated unequivocally by foul sewage, bad air, or aught else, why are not these facts brought forwad and established on a proper foundation? Why are we still floundering in ignorance? Has any one ever yet discovered any difference betwixt the composition of smallpox lymph and healthy lymph, or betwixt vaccine matter and that of smallpox or plague? Without the slightest fear of contra-

diction, we say "No:" and yet there are those who pretend to decide upon healthy and unhealthy smells! healthy and unhealthy air! sanitary and non-sanitary regulations! profoundly ignorant, meanwhile, of the very rudiments of that knowledge the full possession of which alone could justify the use of their dogmatic declarations. Berthollet examined with great minuteness the air of a plague hospital at Aleppo, and found its chemical composition identical with that of the ordinary atmosphere of Paris. Records have now been kept for many years of the state of the air, its electrical condition, moisture, &c.; the state of the barometer, thermometer, anemometer, and ozonometer; the direction of the wind, the amount of rain, and a vast variety of meteorological indications; but up to this moment no one has ever succeeded in tracing any connection between these details and the presence or progress of disease, though frequent and vigorous have been the endeavours made to show that such a connection exists.

Strange to say, however, the question of food and clothing, in reference to disease, has received little or no attention. Farmers are now well aware that external warmth will replace internal food in the economy of brutes; but this fact has yet to be learnt by many who have the management of human beings. The poor are always badly clothed, and require therefore, on this very account, more food, and that too of a more calorific quality than the more fortunate classes of society; but their food is generally of a worse quality—less oil, less butter, less fat. Can we wonder, then, that these poor creatures instinctively rush to alcohol for an internal source of heat, and a substitute for that which neither their food nor raiment will supply? Or, again, can we wonder that, thus contending with both natural and artificial difficulties, the organs of vitality become depraved and diseased, down to the minimum of functional action, so as to hold out a kind of welcome to any epidemic that may put up its appearance?

Nor is the deficiency of means for retaining and generating animal heat in the lower orders of our metropolitan population limited to the obvious want of day-clothing; the same defect exists in a yet more remarkable degree with reference to the article of bedding, and which is by far the most important of the two. Every man's experience has taught him how rapidly "colds are caught" and diseases acquired during sleep; and the fatal consequences of sleeping whilst suffering from the effects of intense cold are perfectly notorious. Nor is there anything surprising that such results ensue at this particular period, because philosophy most conclusively demonstrates that during sleep there must be a diminution of animal heat, and a reduction of those powers which give impetus and vigour to the action of the heart: hence, no doubt, the great advantage of sleep during the inflammatory stage of some fevers.

But, turning from the question of fevers, in which an over-excitement prevails in the circulatory system, to the case of an ill-fed, ill-clad, poverty-stricken individual, in whom the vital and even mental powers are, so to say, paralysed and withered, what view are we physiologically to take of the requirements of this man during sleep? Why, that every available means of retaining heat should be employed; nay, that its external application is even called for, in order to diminish the demand upon the calorific elements of the blood, and give rest to those organs through whose action heat is generated. But what are the practical facts of the case as seen on an examination of the domicile of such an individual? Alas! they are exactly the reverse of the requirements we have pointed out—ill-covered in the day, worse covered at night, the drain upon this poor creature's badly supplied constitution is fearful indeed; for that constitution there is no rest, no intermission, no sleep; the torpid brain, stunned with gin, alone sleeps. Examine him as he lies, and mark his respiration: the pectoral and intercostal muscles are in full play, as if the whole animal frame was employed on some laborious occupation; in fact, he labours at sleep; it is not the diaphragm only which carries on the process of respiration—the whole of the muscles of the chest, and even part of those of the arm, are actively engaged in the murderous contest of supplying the greatest amount of heat under the greatest amount of difficulty. Call this rest! it is a satire upon the word. Talk here of the refreshment of sleep! it is a burlesque upon animated nature. Yet this man is supposed to rise in the morning able to do a day's work, and anxious to combat the toils of heavy labour! Is this reasonable? or can we be surprised if his much abused frame proclaims to him in a thousand ways its total unfitness for such a struggle, whilst his purely animalised intellect suggests the simpler process of theft as likely to supply the requirements of the moment? We are all human, and no greater truth was ever divulged than may be found in the declaration of the truly liberal Lady Mary Montague, who said that she "had travelled all over the world, and had found only men and women." Placed in different circumstances, we become altered beings; and though, no doubt, most people at times get to know what hunger is, yet few ever learn how detrimental to all self-respect and self-government is that "hunger of the constitution" which results from a long-sustained cry of want in every organ of the vital economy. To hope for cleanliness and sanitary reform amongst the lower orders of society before the imperative demands of nature are satisfied, is to look for a vain thing, and to display gross ignorance; as soon may we expect a starving vagrant, who never sees a dinner, to carry a silver toothpick. If disease and crime exist and propogate themselves more rapidly amongst the poor than the rich, it is not from any innate difference betwixt these two classes; it results, on the contrary, from the operation of natural laws, which, like gravitation, bring effects always back to the centre, however far for a moment the conventionalities of society may cast them. We may overlook and despise, we may conceal, and even induce our poor to conceal, the want of those requirements which constitute "the curse of Adam;" but Nature will prevail ultimately, and in that ill-fed stomach, that ill-clad skin, and cobweb coverlet, stalk forth upon civilisation in the forms of crime, contagion, and death.

If, then, the present movement is intended to be more than a mere parody of the past, the duty of the district medical officers will be no trifling matter. It will be, when properly performed, quite enough for each man to execute, and, considering the high and extensive range of qualifications needed, fully more than the average of districts will be able to pay for. To do it well and thoroughly, is to establish a record that in all times to come will be hailed by mankind as an echo of the voice of the Divinity—an appendix to the tables of Horeb; to do it ill, is to repeat what has been done before, and leave us where we were. In addition to everything yet attempted we must dive down to the very sources of disease—in short, to a complete analysis of our social economy; nothing synthetical can any longer be tolerated; mere built-up surmise and analogical supposition must be totally abandoned, and a system based upon the acquisition of real knowledge instituted: a time may come in which to theorise, but for the present we want absolute facts and unvarnished truths. The diseases of the poorer orders, or which assume a more malignant form with that class; the nature of the diet, clothing, and dormitories amongst this and other classes; an analysis of the air in the houses of the various classes at different periods of the year, and in different conditions of the weather, more especially with reference to the amounts of hygrometric moisture and carbonic acid; the same with regard to the open streets and damp or marshy localities; the average area of atmospheric space in the dormitories relatively to the number of occupants; the character of the water supply as regards quantity and quality, with occasional analyses and remarks regarding the ammoniacal and organic constituents; the facilities enjoyed for the use of daylight and gas or candle light, as, also, of artificial heat or fire; all these, and many more, are needed, over and above the ordinary routine report of an officer of health; nor is there wanting another and most important inquiry, which legitimately comes within the sphere of his observations. It is tolerably certain that both animals and plants are subject to some diseases which, so to say, do not die or perish with them, but remain and prevail even in the cooked food into which they are converted. An example of this is seen in the ergot of rye, or "spurred rye," which is rye suffering from a kind of mortification or fungoid disease of a debilitated type; and experience has proved, that when rye of this kind is mixed with healthy wheat and made into bread, the individuals who eat of this bread speedily suffer from mortification and other diseases indicative of a debilitated state of the constitution. Indeed, it would seem that, as regards vegetable food, we are more subject to serious changes than is generally thought of: thus, brewers find great variety in barley, according to the soil or kind of weather in which it has been grown, and which very frequently unfits it for the purpose of making malt. In damp seasons, characterised by a deficiency of sunshine, barley will rarely undergo the germinative process, but as-

sumes merely an unhealthy and uncertain kind of reaction. Now, it is extremely probable that wheat, grown under the same circumstances, is not exactly what it should be, though we have not, perhaps, any means at present of knowing or proving this; still a question arises, how far its nutritious qualities are diminished or deteriorated in these cases. Similarly with regard to the animals which yield us food, a question seems raised whether, under certain conditions, disease is not engendered and propagated by their use. It becomes therefore part of the duty of a health officer, in case of the appearance of an epidemic or other prevalent form of disease, to inquire minutely into the sources of supply for every kind of food which has been taken by the sufferers, so as if possible to discover one common circumstance connected with the whole, or with those in whom the disease first manifested itself. Such inquiries are readily responded to by the sick; and if, as has been very properly suggested, the health officer is interdicted from pursuing his profession, the total absence of all rivalry would soon secure him the confidence of his medical brethren, and thus enable him to grasp an immense mass of details with comparatively little labour. Without having previously secured this confidence, the perfect execution of his duty will be an impossibility, and both himself and his office become a mere sham.

MUNICIPAL NOTIONS OF COMPETENCY AND RECOMPENSE.

The opinion that the consumers of gas and of water are better and more cheaply served by centralising the supply in municipal bodies than by trusting to independent companies, has been oftentimes asserted, and as often contradicted. The borough of Halifax is among the number that have adopted that system of management; and some idea of the manner in which the municipal system is worked may be inferred from a notice to engineers and surveyors inserted in a contemporary journal.

The corporation having undertaken to supply the inhabitants with cheap gas and cheap water, to drain their houses, and to take care of their health, at a cheap rate, find it desirable to carry out the principle of centralisation by concentrating in one person the charge of performing all those duties. It could scarcely be expected that the right man could be found in the town of Halifax, so the corporation have advertised for him in a London paper, hoping that in the metropolis, where all the talents congregate, many would be found suitable for their purposes. The qualifications required, and the *honorarium*, are thus specified:—

"Wanted, a surveyor *fully competent to take charge of the borough water-works, gas works, sewerage, and other public works of the borough*, besides the usual business of the corporation, *including that of the Local Board of Health. He must be familiar with the practice of engineering* in connection with the above-mentioned works, *able to conduct surveys, prepare plans, drawings, and estimates of works of every description, and will be required to devote the whole of his time to the duties of his office.* SALARY £250 PER ANNUM."

Our readers may be disposed to think it a joke; but we assure them that it is a *bonâ fide* affair, and that upwards of 150 individuals have solicited the appointment, though in the course of our experience we never met with but one who had any pretensions to combine in himself the chief qualifications insisted on by the corporation of Halifax, and ten times the amount offered would not have induced him to accept the office.

There was a time, during the last war, when it was a customary toast with officers in country quarters, that they might be saved from the three H's; signifying thereby "Hull, Hell, and Halifax." The latter must be greatly changed since those days, to tempt 150 persons so eminently endowed to occupy the whole of their time in ministering to the wants, and in attending to the health of the inhabitants, and in transacting all the business of the corporation, for little more than a clerk's salary. It is to be hoped that among so many applicants the corporation of Halifax will be able to fix upon the right man, and that he will find himself in the right place. If, on the contrary, it should be found that the duties he undertakes to discharge are neglected, that affairs are mismanaged, that the inhabitants are laid prostrate with fever, and that the corporation funds are plundered or wasted, let that sapient body take consolation in the reflection that the result fully answered all reasonable expectation.

THE LONDON WATER SUPPLY.

The various Water Works' Companies of the metropolis have terminated nearly all the works imposed upon them for the improvement of the quality of the water they distribute, within the period prescribed by the legislature, and London may now boast of a supply worthy of the first commercial city in the world. It is our intention, in the subsequent numbers of this Journal. to give an account of the state of this branch of the public service as it existed previously to 1850, and of the improvements which have been effected subsequently to that period by the unassisted efforts of the companies. The public can hardly be aware of the extent of the sacrifice those companies have made, nor of the difficulties they have overcome. It appears, therefore, that it will be but an act of justice to place the whole truth before those who are interested, or who are bound to appreciate it.

In the meantime, it is worthy of remark, that in no case can it be said that anything like an engineering failure has occurred in the execution, by private companies, of these works, which have cost considerably more than a million and a quarter; whilst nearly all the smaller works executed by local boards of health, under the guidance of the General Board of Health, have signally failed. The supply of water to the camp at Aldershot is, also, a remarkable commentary upon the mischievous empiricism which has lately been adopted in high quarters, and it is impossible to avoid allusion to it whilst referring to the present state of our London supply. It may be in the recollection of our readers that it was seriously proposed to abandon all the existing sources, and to resort to a system of underground drainage of the Bagshot Sands, for the purpose of securing enough soft water for the consumption of a population of two millions and a half. It is doubtful whether the number of people assembled in the camp amount to more than 10,000; yet, after the officers of the Royal Engineers had in vain endeavoured to find enough water for them, the Government has been compelled to obtain the requisite quantity by the assistance of the Basingstoke Canal Company. May we not justly ask what confidence can be placed in the opinions of men who have thus signally proved their ignorance of the subjects in which they pretend to dogmatise? In what condition would London have been, had the ridiculous scheme of pot-piped gathering-grounds been carried into execution?

There is, in our opinion, the greater merit to be attributed to the London Water Works' Company for their skilful and conscientious compliance with the terms of the hard bargain forced upon them, because the circumstances of the times have been unusually unfavourable to them. At the commencement of their operations, the labour market was in a very unsettled state, and the materials they required were exceptionally dear. Latterly, wages and materials have only fallen in a very insignificant degree, whilst the money market has been in a more disturbed state than it has been for the last ten years; still the companies have persevered, and have not sought for any diminution of the burthen imposed upon them. Most sincerely do we wish that the results may compensate for the efforts made and the expense incurred to meet the requirements of public opinion; and it is with implicit confidence that we refer to this striking illustration of the superiority of private enterprise in our country to any of the existing state institutions. The lesson is worthy of the serious attention of our economical reformers.

Circular to Gas Companies.

The existing pressure upon Gas Companies, arising from the high price of coals, without an equivalent advance in the residual products, has been to some extent mitigated during the past year by the enormous increase in the consumption of gas, consequent upon the high prices of oil and tallow; and, instead of the usual increase of 8 or 10 per cent. per annum, the consumption of 1856 bids fair to exceed that of 1855 by 20 per cent. Unless, therefore, timely provision is made for this increase, such gas-works as are already taxed to the full extent of their powers, run the risk of breaking down in the midst of prosperity. At the present moment more than ordinary difficulty is experienced in the execution of orders for castings and machinery, in consequence of so many foundries being filled with Government contracts; and many instances came under our observation last year, where engagements entered into for works imperatively required for this winter's service, and which

ought to have been completed in August, are still incomplete, in spite of penalties amounting almost to the value of the work undertaken. Contracts which are driven off till the spring of this year will probably share the same fate; and every manager of gas-works will act wisely in making his arrangements forthwith to meet the requirements of the next winter.

The discussion on the report of the committee of the town council of Liverpool, on the gas supply of that borough, and on the reply of the gas company, is fixed to take place on the 9th inst. Nothing has transpired since we last alluded to this subject to render any further reference to it necessary at present.

A meter manufacturer, who has distinguished himself by the unscrupulous means he has adopted for puffing his own article, and decrying those of his fellow-tradesmen, has circulated a scurrilous attack upon us, for having omitted from the table which we last month published of meters tested by Mr. Mills, the meter-prover of the South London district, some further details which that individual had, unsolicited by us, appended to that report, in which were given the names of a few of the manufacturers of the meters proved by him, and also a statement as to the extent to which some of the wet ones might be overfllled or undercharged with water. At whose suggestion these additions were made we have no means of ascertaining; but the use now attempted to be made of them raises a strong suspicion that Messrs. Croll and Glover, or their emissaries, were not entire strangers to a trap which was, to all appearances, laid for us. Had we published the additional report, we laid ourselves open to an action for slander at the suit of Mr. Glover, or some other manufacturer; and because we declined to incur that responsibility, we are charged with the suppression of evidence, that the meters mafactured by Mr. Glover are "*vastly superior in every respect to all the other meters;*" an assertion, however, which the report entirely contradicts. In either case, the game attempted to be played was a safe one for its authors; they obtained the materials either for an action or for a puffing advertisement, and the course we adopted left the latter in their hands. We apprehend, however, that a perusal of the following documents will, at all events, acquit us of any complicity in the breach of confidence which has been committed, and place the onus on the proper shoulders.

Knowing the anxiety felt by gas companies to obtain correct data with respect to the performance of meters, we applied, on Nov. 20 last, to Mr. Mills for the following information relative to the 1438 meters tested by him in the quarter ending Sept, 29 last, without, however, pledging ourselves to give it publicity :—

1. How many were dry ones, and how many wet ones?
2. The same with regard to the 72 found to be incorrect.
3. The same with regard to the 26 reported to be fast.
4. The average per cent. fast of the dry meters.
5. The same with regard to the wet meters.
6. How many of the 37 meters reported to be slow were dry ones, and how many wet ones?
7. The average per cent. slow of the dry meters.
8. The like as to the wet meters.
9. How many of the 9 meters reported to have stopped registering were dry ones?
10. The same with regard to the wet meters.

Mr. Mills very properly replied to our request in the following terms :—

South of London Meter Inspector's Office, Borough Road, Nov. 21, 1855.

Dear Sir,—In answer to your note of yesterday, I beg to state I shall have much pleasure, as a "public officer," in complying with your request, as I have do doubt such a document would give valuable information to the various gas companies and consumers; but, to prevent the companies whose meters I test considering I have exceeded my duty by giving the required analysis for publication, I must beg to request that you will obtain their consent in writing, and forward the same to me, upon the receipt of which I will immediately forward you the required document.

The names of the gas companies are, the London, Phœnix, South Metropolitan, and Surrey Consumers'.

I am, dear sir, yours respectfully, G. Mills.

We accordingly applied to the four companies for their respective permissions; that of the Phœnix Company was received on the 22nd, of the South Metropolitan Company on the 26th, and of the London Company on the 29th; and on Dec. 7 we received Mr. Mills's table of the meters proved for these three companies, accompanied by the following letter :—

South of London Meter Inspector's Office, Borough Road, Dec. 7, 1855.

Dear Sir,—I beg to enclose the analysis of the meters tested by me during the past quarter, which you requested of me.

Being anxious to give you all the information I can relative to the meter question, I have added a "table" of results, from a series of experiments I have made upon several wet meters, in regard to the high and low water lines.

You will find, upon going through the above, a slight discrepancy in regard to the five-light meters, which I can only account for through being of different makers.

Should you require any further information that I can give you officially, I shall feel a pleasure in doing so.

I am, dear sir, yours, respectfully, G. Mills.

Appended to the table was a list purporting to set forth the names of the manufacturers of some of the meters; but as these details with respect to 227 wet meters, *all of which were reported to be accurate*, were not given, we determined to restrict the publication strictly within the limits of the authority we had applied for and obtained.

On Dec. 8 the assent of the Surrey Consumers' Company was received, and on the same day Mr. Mills transmitted us his report upon their meters, accompanied by the following letter :—

South of London Meter Inspector's Office, Borough Road, Dec. 8, 1855.

Dear Sir,—I last evening received a note from Mr. Boddy, the secretary of the Surrey Consumers' Gas Company, stating the directors were quite agreeable to the publication of the returns required by you, on the condition that I should send them a copy of the same, which I have done this morning.

I herewith enclose you the analysis of the meters belonging to that company for publication, which you will please to add to the others sent yesterday.

I have forwarded to you the whole of the analysis, which (and) I am quite agreeable to the same being published, on the condition that I shall not be held *legally* responsible for the same.

I am, dear sir, yours faithfully, G. Mills.

The italics are Mr. Mills', and they confirm the propriety of the decision we had come to with respect to the publication of the voluntary addition to his report. Coupled with this, the chief official of one of the companies intimated to us that he had seen Mr. Mills, and been informed by him that the names of the manufacturers of the faulty meters had been sent to us, which might be deemed actionable; "and, as neither his company nor Mr. Mills would be responsible for its publication, he had to request that we would not publish more than the statements of "Wet and Dry Meters," to which his company had given their consent. This injunction we have strictly complied with, and it is to be regretted that the directors or officers of the Surrey Consumers' Company should have lent themselves to a transaction amounting to a breach of faith with their colleagues, in furtherance of the unprincipled efforts of one tradesman to establish a reputation at the expense of his fellow-tradesmen.

So far as we are concerned, we are grateful for the opportunity the attack has afforded us of proving to those who honour us with their confidence how discreetly we deal with the information they place at our command.

Communicated Articles.

EXAMINATION OF THE PROCESS OF MAKING GAS FROM COAL AND FROM WATER.

PROPOSED BY M. GALY CAZALAT.

"*Report to the Committee of the Association of Industrial Artists and Inventors, by* M. FAURE, *Civil Engineer.*

"Gentlemen,—In the sitting of the 6th of February last I had the honour to report to the committee the actual interest and great importance which are attached to the examination of the conditions of the economical production of illuminating gas.

"You knew under what circumstances, after having excited the lively solicitude of the Parisian consumers in the first instance, the subject had afterwards fixed the attention of the Emperor.

"You knew also that one of our colleagues, with an inventive and ingenious spirit, after having profoundly studied these conditions, was able to conceive and indicate different modes of manufacture, which appeared to recommend themselves by striking features of novelty; and you were already enabled to surmise and to have a glimmering of the processes conceived by M. Galy Cazalat, the elements of a good and practical solution of an important problem, with which there are connected, on the one part, the powerful interests of the gas companies, and on the other part, public interest, justly anxious to obtain at the lowest price light and heat.

"You then thought right to request from a commission composed of MM. Ch. Tessier, Silberman, Boquillon, Mallet, Marini, and Faure, a profound examination of the process of the manufacture of gas conceived by our excellent colleague; to desire that commission to submit those processes to a conscientious examination; that it should make an explanatory comparison of those processes—their economical and financial results, both with the modes adopted by the gas companies, and with the improved method which quite recently has been practised at the Experimental Gas Work of Sèvres, by an Imperial Commission composed of eminent men.

"Having this great and difficult task before us, and after five laborious sittings devoted to the examination of the processes of M. Galy—to the study and discussion of his methods—to the examination of some objections which might be raised—your commission deigned to ask from him, whom they had made their president, a report, which I now submit to you. Happy if, replying to the confidence of the committee and to that of my colleagues of the commission, I can succeed in conveying to your minds that amount of well-founded hopes—logical as I believe them to be—which, after having led me to penetrate as deeply as I was able those beautiful and grand questions connected with the subject that have been entrusted to me, have led me to think that the projects and processes of M. Galy for the manufacture of gas ought to attract the serious attention of all competent men, and become the subject of industrial experiment.

"This report—too long, no doubt—is divided into two parts. In the first, after having indicated the usual conditions and results in the manufacture of gas, I have endeavoured, in the first instance, to place prominently the facts, conditions, and principles which form the starting point of M. Galy in the invention of the methods and apparatus which he claims. I have endeavoured afterwards to describe clearly those apparatus, having at all times the desire to enable you to follow step by step the successive phases of the operations, more or less complex, which they accomplish. After having stated and described each of the three processes conceived by our colleague for the manufacture of gas for illumination and for heating, I endeavoured to analyse and discuss them in succession, to enable me to establish the consumptions, products, and wastes of each.

"I have endeavoured to finish this part by a concise, but exact analysis of the patents obtained by M. Galy for these different processes and apparatus.

"The second part of this report is, and ought to be, exclusively, as I believe, a serious and complete examination, as far as I was able to make it, of the cost of produce which would result from the various processes, distinct or combined, invented by our colleague. It has appeared to me to be useful, even indispensable, to precede this examination by a statement of the actual cost of produce, such at least as it is declared by the gas companies, or such as was obtained and established according to the experiments made by the Imperial Commission at the Gas-work of Sèvres.

"PART I.

"The six companies whose eight gas-works supply the city of Paris, declare the following results for the decennial period comprised between 1853 and 1854:—

"100 kilogrammes of coal (equal to 220 English pounds) contain—

		Cubic feet.
Bicarburetted hydrogen, or olefiant gas	C^4H^4	54·965
Proto-carburetted hydrogen	C^2H^4	618·000
Carbonic oxide	C O	130·615
Carbonic acid	$C O^2$	35·310
Sulphuretted hydrogen	S H	25·482
		864·372*

	lbs.
Coke	143·325
Tar	9·922
Ammoniacal liquors	19·294

"The fuel consumed for heating the retorts is represented by 54·578 lbs.

"The charge of the five retorts, arranged in a single oven, consists of 882 lbs. of coal, the distillation of which lasts four hours.

"M. Payen, in his treatise on industrial chemistry, states, as the average produce of one of the gas-works of Paris which uses the coal from Mons, as follows:—

Coal.	Gas obtained in cubic feet.	Coke. Bushels.	Breeze. Bushels.
100 kils. (220·5 lbs.)	794·475	4·581	·275

Tar. lbs.	Ammoniacal liquor. Gallons.	Sulphate of ammonia. lbs.
12·68	1·86	1·323

"The Imperial commission specified in the following manner the average results obtained at the experimental gas-work of Sèvres:—

Coal.	Gas obtained in cubic feet.	Coke. Total produce. lbs.
100 kils. (220·5 lbs.)	807·011	166·257

Tar. lbs.	Ammoniacal liquors. Gallons.
14·839	2·01

"The fuel consumed being represented by 45·481 lbs., the charge of each of the five retorts of the same oven is 220·5 lbs., the distillation of which lasts from four hours to four hours and a half. In twenty-four hours the five retorts of the same oven distil 5512 lbs. of coal. The number—166·257 being the weight in pounds of the coke produced by distillation—appears too high, whether it is compared with that stated by the gas companies or by M. Payen, or whether we consider the absolute weight of carbon given by analysis in the coals usually employed for the production of gas. To be convinced of this fact, it is sufficient to observe that if we estimate the weight of the gas obtained, and if we take 1·4994 lbs. as representing the weight of a cubic mètre (35·3166 cubic feet) of gas—a number certainly low compared with that indicated by the companies—we should arrive at a total of 105 kilogrammes as the product yielded from the distillation of 100 kilogrammes of matter.

"Nevertheless, the nature of coke being essentially hygrometric, we are inclined to think that these five kilogrammes in excess may be attributed to a certain quantity of water absorbed and retained by the product when the commissioners had it weighed. Although the liquid product of distillation remained constant, so that the distillation of 100 kilogrammes of coal in the method used for the producton of gas are comprised between 13 and 14 kilogrammes, yet, if we consider the chemical composition of these products, we are compelled to admit that a more complete and energetic distillation would obtain the greater part of these 13 kilogrammes in a gaseous state.

"We may also hope for a very marked reduction in the successive impoverishments which, according to M. Payen, are actually produced in the lighting power of the gas during the different periods of distillation, as at present practised. To obtain this reduction, and to maintain the production of the gas in a condition, if not constant, at least more regular, it is necessary to improve the processes of distillation—maintaining a regular and limited temperature, so that the carbon may unite regularly with the hydrogen in the highest proportion, without disturbing the gaseous mixture by too sudden variations of temperature. These conditions being satisfied, we ought to obtain from 100 kilogrammes of coal 67 kilogrammes of coke and from 33 to 34 cubic mètres of gaseous products; and we should have reason to hope that the composition of the gas, sensibly regular during the whole operation, might rest very analogous, if not identical, to that obtained in the actual mode of manufacture in the best of the five periods, which, according to M. Payen, occurs during the course of the complete operation.

"Thus the original distillation regulated and improved of 100 kilogrammes (220·5 lbs.) of the coal of Mons, for example, would give from 34 to 38 cubic mètres (1200 to 1342 cubic feet) of gaseous products, composed as follows:—

	Per 100.	Cubic feet.
Bicarburetted Hydrogen (olefiant gas)	13·	172·431
Proto-carburetted Hydrogen	82·5	1106·968
Carbonic oxide	3·2	42·936
Azote	1·3	17·44

comprising altogether 38 cubic mètres (1342 cubic feet) of illuminating gas, giving the most brilliant light, the total weight of which will be represented by about 28·50 kils. .... 62·842 lbs.

Coke	67·	147·735
Ammoniacal residual	4·50	9·922
	190·00	220·499

"M. Payen, whom we have already quoted, appears to authenticate this estimate; for, after having stated those proportions relative to the better period of ordinary distillation, he further says: 'To obtain *the maximum of illuminating gas*, it is requisite, during the continuance of the distillation, that the temperature should be regular and maintained at a *clear cherry-red heat*, in causing the products of the distillation to pass through coke heated to redness, where the condensible carburettes are transformed into permanent gases fit for lighting.'

"These hopes, or to speak more exactly, these realisable conditions, have evidently served as the starting point of M. Galy Cazalet when he entered on the interesting problem which he proposes to solve in a manner which it is our mission to examine. It is requisite to remark, in fact, that since 1785, that is to say, since the first attempts of the French engineer Lebon, the apparatus for producing gas for lighting had always depended for their essential conditions upon the following principle:—

To distil in a close vessel a gas-producing material (coal, resin, turf, or some other hydro-carbon), separating that material in the vessel and keeping it free from all contact either with the fuel intended to produce the necessary heat for distillation, or with an incandescent mass more or less varying from uniformity.

In studying the actual manufacture, with its retorts heated to a redness more or less lively, in which there are introduced about 100 kilogrammes of coal, which remain there and are transformed during four or five hours, he has no doubt been struck by a fact which M. Payen has plainly indicated in the following terms:—'*In the retorts the gas becomes less and less illuminating, and requires a higher temperature.*' M. Galy Cazalet has sought for the cause of the indisputable and unquestioned evil in the circumstance, that the products of the distillation escaping immediately before mixing, and coming into intimate contact under such conditions as the chemical reactions from which should result the gaseous combinations of the hydrogens of the carbon contained in the bituminous products set at liberty, the first are incomplete if not totally prevented.

He has conceived further that a bar-furnace, with its combustion always incomplete, with its circulation of flame and smoke round the retorts, with its draft chimney, would always be, however constructed, an apparatus little fitting to usefully employ all the dis-

* We have searched in vain for any such analysis of the Paris gas in the voluminous documents connected with the recent negotiations between the municipal authorities and the gas companies of that city; indeed, a coal gas in which free hydrogen did not exist would be a novelty in chemical science. Gas of the composition stated in this analysis would be 30 per cent. heavier than ordinary coal gas.—ED. J. G. L.

posable heat in the consumed fuel. In short, he has remarked, and, according to us, with correctness, that the necessary temperature for distillation commencing with the combustion of the fuel should increase in proportion to the combustion itself, because the sides of the retort, when it is filled with a gaseous atmosphere which surrounds the matter not yet distilled, yet receives much heat supplied by the combustible of the furnace, but to transmit it to the gases, which are very bad conductors of themselves, and which absorb it as they expand without producing any useful effect in converting into gas the solid or liquid elements not yet gasified. These considerations, which appear to us correct, have led M. Galy Cazalet to think that it would be reasonable and profitable at the same time.

"1. To replace the retorts and the ovens at present used by a single vessel, containing an incandescent spongy mass, permeable to gas and liquids.

"2. To cause the material to be distilled in this vessel to be brought in contact with this incandescent mass.

"3. To provide means so that every operation is effected under such conditions that the interchange of temperature between the incandescent mass and the matter to be distilled shall be rapidly and freely carried on, the latter being as it was inundated with caloric; while, on the other hand, it is important that the incandescent mass, which gives out this caloric, shall be relatively sufficiently large, so that the measures of heat absorbed by the distilled products, may be of small amount in comparison with the total heat contained in the apparatus.

"4. To be able to produce at pleasure, regulate, and limit, this total quantity of heat; but in fulfilling this essential condition, that combustion in the apparatus remains suspended from the moment the matter to be distilled is introduced, the gaseous products obtained by the eminently favourable means above described, may then escape to be collected in a special reservoir, pure from all mixture with the exterior air or its elements.

"A rapid, but nevertheless complete, exposition of the system of manufacturing gas conceived by our colleague, shows in what manner he has believed it possible to fulfil the programme that we have sketched. We hope you will join us in that hope, that this system, when it shall have been submitted to the crucible of industrial experiment, will produce, in a word, the following effects:—

"1. An augmentation of about a third in the quantity of gas relatively, to that which is actually, obtained from a given weight of coal.

"2. A considerable economy in the cost of labour, an important reduction in of the cost of production of gas.

(To be continued.)

VALUE OF BOGHEAD CHARCOAL AS A DEODORISING AGENT.

In a recent official report addressed to the Secretary at War, upon the effect of various deodorising agents on putrid sewage, Mr. Lewis Thompson states that he has instituted a set of experiments having a purely money basis as their exponent. The articles enumerated were each employed until they practically deodorised one uniform quantity of the same mass of putrid sewage, and the money value of the proportions thus used was deduced either from a broker's price-list or, where this failed to give the requisite information, by special inquiry from a wholesale dealer.

The amount of sewage operated upon in each experiment was half a gallon, taken from a single tank which had been recently filled out of a large and very offensive ditch, or open sewer, that runs near what is called "Hyde Park Estate," and not far from the Hen and Chickens' Lane, Walworth.

Two indications of the progress of the disinfection were had recourse to in these experiments; one with paper dipped into a solution of the acetate of lead, which gradually ceased to become brown as the deodorising agent was added in successive portions: the other had reference to the discontinuance of any offensive smell, as indicated by the nose; and the attainment of this last condition was regarded as the termination of each experiment.

By this means he was enabled to draw up the subjoined table, which shows at a glance the comparative cost of executing the same amount of deodorising work with each agent, on the supposition that Boghead charcoal, of the quality supplied by the Chartered Gas Company, can be had at the rate of 12s. per ton.

Table showing the Cost of Purifying one uniform Quality of Feculent Sewage by the several Articles mentioned.

Boghead charcoal	12s.
Nitric acid	34s.
Black oxide of manganese	37s.
Chloride of lime	43s.
Peat charcoal	44s.
Subchloride of iron (imperfect)	45s.
Animal charcoal	67s.
Chloride of manganese (imperfect)	70s.
Bichloride of mercury	72s.
Impure chloride of zinc in damp powder	104s.
Chloride of zinc in solution, as patented by Sir Wm. Burnett	148s.
Sulphate of copper (imperfect)	156s.

The sulphates of zinc, iron, and alumina; common gypsum; the sulphuric, sulphurous, and muriatic acids; peroxide of iron, highly-dried clay, litharge, and sawdust, were found imperfect, even when very large quantities were employed.

Arsenious acid and creosote, on the contrary, were very active; but the danger of a subsequent evolution of arsenieuretted hydrogen in the first case, and the difficulty of diffusing an oily fluid like creosote in the second, seem to interdict the use of these substances.

Correspondence.

A SUGGESTION FOR THE MANAGEMENT OF RETORTS.

SIR,—It has often appeared to me that, in theory at least, there is a circumstance connected with the charging of gas retorts which is incorrect. Thus the entire oven, or setting of five or seven retorts, is charged all at once, and a large mass of cold material in this way projected, as it were, upon the fire at the very time when the heat is most needed. Again, after a time, the whole of this material having become hot, and parted with much of its volatile matter, no longer requires the amount of heat so indispensable in the first instance; but just at this very time, and from this very cause, the heat of the whole setting accumulates and increases, by which, I fear, mischief of another kind ensues. In the beginning, the demand of heat being greater than the supply, imperfect carbonisation arises, or, in other words, tar is produced: towards the end, the heat formed exceeds the demand, and then decomposition of gas, or, in other words, carbon is produced.

It would be, I think, an interesting inquiry to ascertain the effect of working the retorts singly, at intervals of an hour each; or, where this could not be done, of working half the setting at a time on a 2½-hour system of charging, so as to separate the intervals of calorific demand upon the oven into five or two portions respectively. The first system would seem best adapted for Boghead and other cannel coals; the second for common Newcastle coals. There ought theoretically, by this arrangement, to be a larger production of gas of a higher illuminating power, a smaller production of tar, and a less consumption of fuel. Will any of your numerous readers try the matter practically and report upon it?

London, Jan. 1, 1856. L. T.

Register of New Patents.

1317.—HENRY TEAGUE, of the city of Lincoln, engineer, for "*Improvements in high and low pressure meters for water, gas, or any other fluid.*" Provisional protection only obtained. Dated June 9, 1855.

This invention consists in placing between two hemispherical segments an elastic diaphragm composed of indiarubber, or any other suitable elastic material.

When the two hemispherical segments are bolted together, with the diaphragm between them, they form a spherical chamber or vessel, into which chamber the water, gas, or fluid to be measured is admitted and discharged by a four-way cock or cocks, slide, or valve. This cock is connected with a weight attached to a fork, which is actuated by a rod working through a stuffing-box in the spherical vessel, and connected with the diaphragm. This rod raises and carries the weight on the cock beyond a vertical position, when it falls by its own gravity, and reverses the position of the cocks, thus admitting the fluid alternately on each side of the diaphragm. This same rod also works a register, which indicates the quantity of fluid that passes through the meter.

1428.—LUTHER YOUNG, of Bow Lane, Cheapside, London, gas-fitter, for "*An improvement in the construction of gas regulators.*" Dated June 21, 1855.

The object of this invention is to facilitate the dip of the floating drum of gas regulators into the mercurial joint. In order to effect this, a counterpoise is provided to the resistance which the mercury offers to the descending drum, by making the rod or lever which connects the floating drum with the regulating valve hollow, and inserting therein mercury or its equivalent, which, as the ascending current of gas lifts the valve from its seat, will cause the hollow rod or lever to rock and the mercury to flow towards the depressed end. The mercury, by thus accumulating at one end of the hollow connecting lever, will virtually increase the weight of the floating drum, and thus enable it to overcome more easily the resistance which the mercurial joint creates to the downward movement of the drum. Or, instead of this arrangement, the mercury that is to form a counterpoise is put in a vibrating tube or tubes mounted above the drum, which will have the same effect in overcoming the resistance caused by the mercurial joint by pressing down the drum, instead of drawing it down as above described.

The claim is for—The application to gas regulators of weighted levers, acting in the manner and for the purpose above described.

PROVISIONAL PROTECTION

GRANTED BY THE DEPOSIT OF A COMPLETE SPECIFICATION.

2640.—THOMAS TUCKEY, of the city of Cork, barrister-at-law, for "*Modes of construction by which steam or other vapour or gas may be used as a source of motive power for some purposes more conveniently than hitherto, and more suitably for locomotion on common roads.*" Nov. 23, 1855.

2654.—HYRAM HYDE, of Truro, Nova Scotia, gentleman, for "*Improvements in the manufacture of mineral oils.*" Nov. 24, 1855.

2668.—HYRAM HYDE, of Truro, Nova Scotia, gentleman, for, "*An improved manufacture of lubricating compound.* Nov. 27, 1855.

2535.—William Crosley, of 16, Westbourne Park, in the co. of Middlesex, and 103, Southwark Bridge Road, in the co. of Surrey, gas-meter manufacturer, for "*Improvements in gas-meters.*" Nov. 12, 1855.

2700.—John Ramsbottom, of Accrington, in the co. of Lancaster, engineer, and John Charles Dickenson, of Blackburn, in the same co., machine maker, for "*Improvements in machinery or apparatus for measuring and registering water and other fluids, and obtaining motive power from the same.*" Nov. 30, 1855.

2712.—James Murdock Napier, of York Road, Lambeth, in the co. of Surrey, for "*An improvement in drying small coal.*" Dec. 1, 1855.

2599.—Thomas Culpin, of 25, Royal Hill, Greenwich, in the co. of Kent, engineer, for "*An improved apparatus for regulating the supply and discharge of fluids and gases.*" Nov. 19, 1855.

2613.—Francis Pulo, of Soho Square, in the co. of Middlesex, chemist, for "*A new electric light and heat.*" Nov. 20, 1855.

2672.—James Gardner, of Plaistow, in the co. of Essex, gentleman, and Henry Gardner, of Leytonstone Road, in the same co., gentleman, and John Carey Gardner, of Leytonstone Road aforesaid, gentleman, for "*Improvements in glasses as applied for the transmission of light.*" Dec. 7, 1855.

2786.—Richard Archibald Brooman, of 166, Fleet Street, in the City of London, patent agent, for "*Improvements in manufacturing gas from peat, and in treating hydrogen gas in order to render it illuminating.*" Dec. 10, 1855.

2788.—Josiah George Jennings, of Great Charlotte Street, Blackfriars Road, in the co. of Surrey, for "*Improvements in connecting earthenware rain pipes, and soil pipes of water-closets, and in valve water-closets.*" Dec. 10, 1855.

2820.—John Henry Johnson, of 47, Lincoln's-in-Fields, in the co. of Middlesex, and of Glasgow, N.B., gentleman, for "*Improvements in apparatus for containing and distributing æriform fluids under pressure.*" Dec. 13, 1855.

2669.—Hiram Hyde, of Truro, Nova Scotia, gentleman, for "*An improved manufacture of lubricating oil.*" Nov. 27, 1855

2828.—Edward Orange Wildman Whitehouse, of Brighton, in the co. of Sussex, surgeon, for "*Improvements in apparatus for measuring fluids.*" Dec. 14, 1855.

2840.—Samuel Stewart, of 28, Clement's Lane, London, consulting engineer, for "*An improved combined engine and gas-exhauster, and also improvements in the valve of such exhausters.*" Dec. 15, 1855.

2842.—Paul Marie Salomon, of Rue Neuve, St. Eustache, Jacques Loir Montgazan, of Rue de Bondy, and Charles Marie Joseph de Fleurs, of Rue Lafitte, all in Paris, for "*Improvements in the manufacture of gas from coals, and in the production of bituminous coke in that manufacture, and also in the apparatus connected therewith.*" Dec. 15, 1855.

2878.—Andrew Shanks, engineer, 6, Robert Street, Adelphi, Westminster, for "*Certain improvements in instruments for indicating pressures.*" Dec. 20, 1855.

NOTICES HAVE BEEN GIVEN OF INTENTION TO PROCEED WITH THE UNDERMENTIONED PATENTS.

2249.—Perceval Moses Parsons, of Duke Street, Adelphi, in the co. of Middlesex, civil engineer, for "*Certain improvements in connecting and securing the joints of pipes and tubes.*"

2604.—Richard Archibald Brooman, of 166, Fleet Street, in the City of London, patent agent, for "*Improvements in apparatus for measuring liquids, which may also be employed as a motive power engine.*" Nov. 19, 1855.

1800.—Victor Delperdange, engineer, residing at Bruxelles, in the kingdom of Belgium, for "*A new mode of constructing and jointing tubes and pipes.*" Aug. 9, 1855.

2566.—Cyprien Marie Tessie Du Motay, of Paris, for "*Improvements in the treatment of fatty and oily matters.*" Nov. 14, 1855.

2654.—Hiram Hyde, of Truro, Nova Scotia, gentleman, for "*Improvements in the manufacture of mineral oils.*" Nov. 24, 1855.

2668.—Hiram Hyde, of Truro, Nova Scotia, gentleman, for "*An improved manufacture of lubricating compound.*" Nov. 27, 1855.

1841.—Gilbert Sanders, of Dublin, in Ireland, gas engineer, and Richard Edward Donovan, of Courtduffe, at Castleknock, in the co. of Dublin, Ireland, gentleman, for "*Improvements in maintaining the level of the water or other liquid in gas meters and steam boilers, and regulating or controlling the action of such apparatus.*" Aug. 14, 1855.

2535.—William Crosley, of 16, Westbourne Park, in the co. of Middlesex, and 103, Southwark Bridge Road, in the co. of Surrey, gas meter manufacturer, for "*Improvements in gas meters.*" Nov. 12, 1855.

1943.—Charles Esplin, of 21, Windmill Street, Church Street, Lambeth, for "*Improvements in apparatus for regulating the supply of gas.*" Aug. 27, 1855.

2820.—John Henry Johnson, of 47, Lincoln's Inn Fields, in the co. of Middlesex, and of Glasgow, N.B., gentleman, for "*Improvements in apparatus for containing and distributing æriform fluids under pressure.*" Dec. 13, 1855.

2669.—Hiram Hyde, of Truro, Nova Scotia, gentleman, for "*An improved manufacture of lubricating oil.*"

2880.—Dundas Smith Porteous, of Paisley, in the co. of Renfrew, Scotland, for "*Regulating the pressure of gas, steam, water, or other fluids.*" Dec. 20, 1855.

INVENTION PROTECTED FOR SIX MONTHS BY THE DEPOSIT OF A COMPLETE SPECIFICATION.

2792.—Jacques Elidal De Malbec, of Paris, and of 7, Duke Street, Adelphi, London, for "*Certain improvements in water-closets.*" Dec. 11, 1855.

2880.—Dundas Smith Porteous, of Paisley, in the co. of Renfrew, Scotland, for "*Regulating the pressure of gas, steam, water, or other fluids.*" Dec. 20, 1855.

Miscellaneous News.

ANALYSIS OF NEW RIVER WATER.

By Dr. Letheby.

The Commissioners of Sewers of the City of London, having instructed Dr. Letheby to make an analysis of the water supplied by the New River Company, submitted the result of his examination in a report, which was read at the sitting of the commissioners held on the 11th ult.

"Gentlemen,—In accordance with the instructions which I received from your honourable court on the 13th of November last, I have made an examination of the water supplied to the City by the New River Company, and the following is my report thereof:—

"The water was taken from the main at my own house, on the 14th, 15th, and 16th ult. When it was first drawn it presented a very turbid appearance, from the presence of a comparatively large quantity of clay, flinty matter, and animalculæ. The sample No. 1 is a specimen of the water as it was received from the main tap.

"On allowing it to stand for twelve hours it became comparatively bright, and presented the appearance of No. 2.

"When filtered through a stratum of five inches of fine sand and two inches of powdered charcoal, it became perfectly clear and pellucid, as seen in No. 3.

"Each of these samples was examined chemically and microscopically.

"No. 1 contained 24·1 grains of solid matter in the imperial gallon. Of this 8·1 were chalk, 1·4 sulphate of lime, 1·7 common salt, and 1·8 nitre; 0·6 sulphate of potash, 5·7 flinty matter and clay, and 4·3 organic matter.

"No. 2, contained 16·8 grains of solid matter in the imperial gallon, and the saline matters were precisely the same as in the last case, although there were only 7-10ths of a grain of silica, and 2·2 grains of organic matter.

"No. 3 contained only 14·7 grains of solid residue in the imperial gallon, and the organic and flinty matter had almost entirely disappeared, the proportion of the former being only 8-10ths of a grain, and that of the latter 1-10th.

"When examined by a magnifying power of 320 linear, the deposit from the water was seen to be composed of minute particles of flinty clay and living organisms. The latter are shown in the drawing which I place before you, and it will be observed that they consist of a number of animalculæ belonging to the families *Navicula*, *Fragilaria*, *Synadra*, and *Cocconema*, besides which there are spicula of sponge and filaments of conferva.

"When I first examined the deposit, the animalculæ were in a living state, and they appeared to be thriving very prosperously on the organic matter dissolved and suspended in the water.

"The sample of filtered water did not exhibit any sign of organic life, or of mechanical impurity.

"The cause of this turbidity in the New River water is doubtless to be attributed to the heavy rain which had fallen a short time previously. This had washed the clay, flint, and organic matters from the ploughed and well-manured land of the districts through which the river had flowed; and I may remark that this condition of the water is not at all uncommon in rainy seasons.

"At present the water companies have not the means of effecting a perfect subsidence and filtration of turbid matters from water; but it is to be hoped that when the new system of purification and storage comes into full operation, we shall then see no more of these filthy deposits, which in the case of the living organisms are signs of putrescence and decay. An examination of the three samples of the same water now before you will fully satisfy you how easy it is to remove such impurities.

"As for the general quality of the New River supply, I take this opportunity of stating, that when the water is properly filtered and so deprived of mechanical impurities, it is amongst the best descriptions of water supplies to the metropolis; and, from the circumstance of its containing but a comparatively small proportion of innocuous saline matter, it is excellently well fitted for all the purposes to which it is applied.

"In conclusion, I may inform you that it is easy to construct a cheap and effective household filter, which will readily deprive water of all its mechanical impurities. A large zinc funnel, capable of holding about a gallon of water, is to be placed over a jar or other vessel, from which the filtered water can be easily drawn off. The stem of the funnel is to be packed to the depth of five inches with fine white sand, and above this with a stratum, two inches thick, of coarsely ground animal charcoal, such as the sugar-bakers employ. The sand and the charcoal are to be well washed before they are put into the funnel, and a disc of perforated zinc is to be placed at the bottom of the stem to prevent the sand, &c., from running out. An instrument constructed in this way will keep in perfect action for a long time; and when it fails, it is easily repaired by rewashing the sand and charcoal. I have had a filter of this description in constant use for the last seven years. It has been cleansed only twice in that interval, and it still continues to act very effectively.

"I have the honour to remain, gentlemen, your obedient servant,

"H. T. Letheby, M.B.,

"Professor of Chemistry and Toxicology in the Medical College of the London Hospital."

THE IRON TRADE OF 1855.

The following is from Mr. William Colvin, of Glasgow:—

"The past year has been another of undoubted prosperity in this important branch of our national industry.

"During the 12 months we have experienced considerable fluctuation in the value of pig iron, the price having varied from 54s. to 83s. 6d. per ton—the average for that period being 70s. 6d. for mixed numbers, cash.

"Throughout January the market was remarkably steady at 66s. to 67s.; but in February, owing to political difficulties, and a general want of confidence in the administration of affairs in the East, the price gave way by the end of that month to 54s. On the 2nd of March, the announcement of the death of the Czar, and consequent anticipations of peace, created a better feeling, and by the 5th of that month 60s. to 61s. was realised.

"From that date the price showed little change until the beginning of May, when the reduction in the rate of discount by the Bank of England to 4 per cent., the heavy consumption for war *matériel*, and the closing of several 'Bear' accounts, completely revived confidence in the trade, the price steadily advancing, with little fluctuation, till the middle of September, when it touched 83s. 6d. cash. The state of the money-market, and rapid advance in the rate of discount at this time, notwithstanding the healthy position of the trade, entirely checked speculation, and caused judicious holders quietly to realise. The course of the market has since, with slight interruption, been gradually downwards, with a limited amount of business doing. There has lately, however, been rather more disposition to contract for 'spring' and 'open delivery' at 6d. to 1s. per ton above cash prices.

"To-day the market closes with little animation at 75s. cash for mixed numbers, with buyers at 74s. 6d. All No. 1 g. m. b. may be quoted 76s. 6d.; No. 3, 74s.; No. 1, American brands, 77s. to 78s., cash against bill of lading.

"The shipments have fallen short of last year's by about 40,000 tons; the local consumption, however, has considerably increased, and, notwithstanding that iron from Staffordshire and the Cleveland district has largely supplanted the demand for Scotch at Newcastle, and in the Lancashire and Yorkshire markets, the stock has declined about 30,000 tons.

"There are at present 121 furnaces in blast, and, should prices be maintained, we may expect during next year a slight addition to our production.

	1855.	1854.	1853.	1852.	1851.	1850.
Our shipments to the United States have been.....	57,200	115,300	151,300	100,700	80,000	57,500
British North America.....	6,600	33,200	25,400	11,800	22,400	10,000
France	66,800	31,200	29,000	18,000	10,600	10,500

"In manufactured iron the price began to give way in January, and continued to decline till May, when bars are quoted £7. 5s. to £8; the demand then considerably revived, and the price gradually stiffened to £9. 10s. to £10 in October, from which point there has been a reduction of about 10s. per ton. To-day's quotations are—common bars, £9 to £9. 10s.; plates, £10. 15s.; rods, £10; hoops, £11, less 4 per cent. discount for cash; rails, £8. 10s. to £9 net.

"The growing importance of our local shipbuilding trade may be estimated from the fact that a greater amount of tonnage has been built and launched in your yards in this than in any previous year.

"Launched in 1855, 107 vessels, of 84,750 tons; and at present in stock 57 vessels, of 37,850 tons. Launched in 1854, 129 vessels, of 70,530 tons; and building the 31st of December, 1854, 54 vessels, of 47,390 tons. Launched in 1853, 79 vessels, of 54,750 tons; and building the 31st of December, 1853, 97 vessels, of 61,200 tons.

"I beg to call your attention to the subjoined comparative table of the state of the trade at this period for the last ten years:—

COMPARATIVE STATEMENT.

	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.
Foreign shipments for the year.....	119,100	143,460	162,151	153,183	134,576	192,676	224,070	314,270	283,900	249,000
Coastwise „ „	257,851	227,005	227,833	221,943	190,083	260,080	199,950	305,650	298,100	293,000
Total shipments for the year	376,951	370,465	389,984	375,126	324,659	452,756	424,020	619,920	582,000	542,000
Stock, Dec. 31	145,000	90,000	100,000	200,000	275,000	350,000	450,000	220,000	130,000	100,000
Furnaces in blast, Dec. 31.....	98	100	103	114	105	115	113	114	115	121
Price, Dec. 31	75s.	46s. 6d.	44s.	47s. 6d.	45s.	37s. 6d.	74s. 6d.	79s. 6d.	65s. 6d.	75s.
Average price for the year	71s. 8d.	65s.	44s. 5d.	46s. 1d.	44s. 5d.	40s. 3d.	45s. 4d.	61s. 4d.	79s. 8d.	70s. 9d.
Make of malleable iron	45,000	60,000	90,000	80,000	80,000	90,000	90,000	120,000	110,000	110,000
Average price of bars, Dec. 31	£9 15 0	£8 5 0	£5 10 0	£5 12 6	£5 12 6	£5 7 6	£10 10 0	£9 0 0	£10 0 0	£8 12 6

DETECTION OF SULPHURETTED HYDROGEN AND BISULPHIDE OF CARBON IN COAL GAS.

By THORNTON J. HERAPATH, Esq.

A simple and exact method of estimating the sulphuretted hydrogen and sulphide of carbon contained in coal gas has long been considered a great desideratum by chemists.

The process I am about to describe will, I hope, in some measure, supply this want. The reagents and apparatus I employ are:—

1. A weak aqueous solution of caustic potash.
2. A strong alcoholic solution of caustic potash.
3. A solution of the nitrate or acetate of lead.
4. A standard solution of lead, containing one, two, or three one-hundredths of a grain of metallic lead, as nitrate or acetate, in 100 or 1000 water-grain measures of solution.
5. A standard meter, such as is generally used for testing the illuminating quality of coal gas.
6. Two Liebig's triangles, and
7. Three graduated tubes or colorimeters of uniform bore. The aqueous solution of potash, I may observe, is used to absorb the sulphuretted hydrogen, whilst the alcoholic solution of potash is afterwards employed to dissolve the bisulphide of carbon vapour, which it converts into xanthate of potash—a salt decomposable by heat into sulphide of potassium, hydrosulphuric acid, &c., as shown by the equation:—

$$C_4H_5KO_2{,}2CS_2 + 2HO + = CO_2 + HS + CS_2 + KS + C_4H_6O_2$$

In testing a gas by this process I proceed as follows:—The two Liebig's triangles having been properly filled, the one with the aqueous, and the other with the alcoholic solution of caustic potash, they are connected together by a piece of sheet caoutchouc in the usual way, and attached to the exit-pipe of the standard meter, care being taken to place the one containing the aqueous solution next to the exit-pipe. A known quantity, say 10, 20, or 30 cubic feet of the gas to be examined, is then slowly transmitted through the triangles; the apparatus is disconnected, and the contents of the triangles are separately poured into two different colorimeters. The solutions are next diluted with a little distilled water, mixed with a few drops of a solution of lead, and the *alcoholic* solution is heated to the boiling point, or until no further darkening in colour ensues. The caustic alkali of both solutions is then supersaturated either with acetic or very dilute nitric acid, and water is added to dilute to the required degree. As the sulphide of lead produced by the decomposition of the xanthate of potash that was contained in the alcoholic solution is generally, if not always, much less in quantity than that produced by the sulphuretted hydrogen absorbed by the aqueous solution of potash, it is advisable to dilute the former with less water. The depth of tint communicated to the fluid by the suspended sulphide of lead in the alcoholic solution is then compared with that produced by adding the standard solution of lead, drop by drop, from a graduated tube, into a third colorimeter, which is filled nearly up to the same mark with distilled water, mixed with a few drops of pure acetic acid, and of a solution of sulphuretted hydrogen. So soon as the tints correspond, the measure of the solutions in the two colorimeters is accurately adjusted by adding a little more water either to the one or the other; a little more of the standard solution of lead is added, if requisite, to the trial colorimeter, and the number of measures of the standard solution that have been taken is carefully noted. The operation is then repeated with the contents of the other colorimeter containing the sulphide of lead from the *aqueous* solution of potash; and the number of measures of the standard solution of lead taken is again read off. By a simple calculation, we then estimate the relative proportions of bisulphide of carbon and sulphuretted hydrogen, by weight, contained in the gas examined.

For example, let a represent the quantity by weight of bisulphide of carbon which is equivalent to the lead contained in 1000 grain measures of the standard solution of lead; b, the quantity of sulphuretted hydrogen equivalent to the lead contained in the same bulk of the standard solution; c, the number of measures of this standard solution taken as before explained to produce a tint equal in intensity to that of the sulphide of lead in the *alcoholic* solutions; and d, the number of measures of the same solution by the aqueous solution. Then the proportion by weight of sulphide of carbon and sulphuretted hydrogen contained in the number of cubic feet of gas operated upon is obtained in the following equations:—

$$\text{Bisulphide of carbon} = \frac{c+a}{1000} + 2 \text{ (nearly,}$$

$$\text{Sulphuretted hydrogen} = \frac{d+a}{1000}$$

And as 100 cubic inches of bisulphide of carbon vapour and sulphuretted hydrogen weigh respectively at 60° F. and 30 inches of Bar., 81·8167 and 36·331 grains, the result of the above calculation will afford us the means of ascertaining the proportion of these two substances by volume.

NEW METROPOLITAN BOARD OF WORKS.

The members of this board held their first meeting, in accordance with the notice issued by Sir George Grey, Secretary of State for the Home Department, on Wednesday, Dec. 19, at Burlington House, Piccadilly, where apartments were placed at their disposal until the newly elected body would have time to provide suitable accommodations for themselves.

The new board consists of 45 members, all of whom, with the exception of 3 whose names we could not ascertain, were in attendance. The following is a copy of the official list of the members of the Metropolitan Board of Works (elected Dec. 12, 1855):—

City of London	Edward Harrison, Esq., 82, Cornhill H. L. Taylor, Esq., 10, Queen's Street, Cheapside Thomas H. Hall, Esq., 48, Finsbury Square
Marylebone	J. A. Nicholay, Esq., 82, Oxford Street T. D'Iffanger, jun., Esq., 5, Melina Place
St. Pancras	W. Corrie, Esq., 10, Gloucester Terrace J. Wilkinson, Esq., 2, Paper Buildings, Temple
Lambeth	F. Doulton, Esq., High Street, Lambeth R. Taylor, Esq., 3, Lambeth Terrace
St. George's, Hanover Square	H. A. Hunt, Esq., 57, Eccleston Square W. Lyon, Esq., 22, Park Lane
Islington	J. Savage, Esq., 51, Thornhill Square W. Dennis, Esq., Twyford Villa, Caledonian Road
Shoreditch	W. A. H. Hows, Esq., 99, Kingsland Road J. Ware, Esq., 2, Trafalgar Place West

Paddington.—H. Burslem, Esq., 14, Kensington Gardens' Terrace

St. Matthew's, Bethnal Green.—T. B. Bevan, Esq., 5, Elizabeth Terrace, Hackney Road

St. Mary's, Newington.—A. Boyson, Esq., 28, Newington Place, Kennington
St. Giles's, Camberwell.—A. L. Irvine, Esq., Smyrna Lodge, Park Road, Old Kent Road
St. James's, Westminster.—Sir John V. Shelley, Bart., M.P., 25, Park Lane
Clerkenwell.—J. Pascall, Esq., 1, Queen's Row, Pentonville
St. Luke's, Chelsea.—F. Chalmers, Esq., Cheyne Row, Chelsea
St. Mary Abbot's, Kensington.—W. Hawkes, Esq., 21, High Street, Kensington
St. Luke's, Middlesex.—J. Moreland, Esq., 18, Old Street, St. Luke's
St. George's, Southwark.—E. Collinson, Esq., 95, Blackman Street
Bermondsey.—B. Drew, Esq., Bermondsey Street
St. George's-in-the-East.—P. Crellin, Esq., 198, Ratcliffe Highway
St. Martin's-in-the-Fields.—W. H. Dalton, Esq., Cockspur Street
Mile End.—W. E. Snow, Esq., 25, Tredegar Square, Mile End
Woolwich.—L. Davis, Esq., Plumstead
St. John's, Hampstead.—T. Turner, Esq., Hampstead
Whitechapel.—G. S. Wallis, Esq., 16, Mansell Street, Goodman's Fields
St. Margaret's and St. John's, Westminster.—A. Wright, Esq., 55, Millbank Street, Westminster
St. Saviour's, Southwark.—J. Thwaites, Esq., 61, High Street, Southwark
Wandsworth.—W. M. Carpmael, Esq., Streatham Hill
Hackney.—G. Offor, Esq., Grove Street, Hackney
St. Giles's and St. George's, Bloomsbury.—Capt. Barnett, R.N., 14, Woburn Square
Holborn Union.—R. B. Seeley, Esq., 54, Fleet Street
Strand Union.—C. Few, Esq., jun., 2, Henrietta Street, Covent Garden
Liberty of the Rolls.—V. Stevens, Esq., Bell Yard, Temple Bar
Limehouse.—B. Dixon, Esq., 3, Norway Place, Commercial Road East
Poplar.—Simon Knight, Esq., Blackwall
Greenwich.—J. Thwaites, Esq., 61, High Street, Southwark
Lewisham, Plumstead, &c.—C. Atkins, Rushey Green, Lewisham
Rotherhithe.—W. Miskin, Esq., Lower Road, Rotherhithe

The members are 45 in number.

Eleven o'clock, the time for opening the proceedings, having arrived,

Sir J. V. SHELLEY, M.P., said, the first business which the board had to transact was to appoint a chairman; that was the special object for which this, the first meeting of the board, had been convened. It was necessary, however, that, for the sake of order, some gentleman should be appointed to act as temporary chairman; and as there was one gentleman present—Mr. Thwaites—who appeared, under peculiar circumstances, as the representative of two constituencies, he (Sir J. V. Shelley) would propose that that gentleman be requested to act as chairman *pro. tem.* He (Sir J. V. Shelley) had taken the liberty of making this proposition, for it was necessary that some one should take the initiative, and he might as well do so as any one else.

A MEMBER: Is Mr. Thwaites a candidate for the office of permanent chairman?

Sir J. SHELLEY: If I thought Mr. Thwaites were a candidate, I should withdraw the motion.

Mr. THWAITES said he was much obliged to Sir J. Shelley for the manner in which he had brought his (Mr. Thwaites') name before the meeting. Of course it would be a great honour conferred on him to be nominated to the position of temporary chairman; but as it had been asked—and the question was a fair and reasonable one—whether he was a candidate for the permanent chairmanship, he could only say that up to that moment he had not issued any bill or circular intimating any such intention on his part. He had been asked whether he intended to stand; but he thought it more respectful to a body like the present to allow them to be their own judges. On that account he had not intimated, by any public advertisement, his intention to stand for the office; if, however, the board should think fit to select him, he would be most happy to discharge the duties of the office to the best of his ability. On these grounds, he thought it would be better for some gentleman who was unwilling to serve to be appointed as temporary chairman.

Mr. H. LOWMAN TAYLOR said this was a preliminary meeting, convened for the public good. Great interests were at stake, and important duties would devolve on the gentleman that might be selected as their chairman. He would recommend to their approval a gentleman who, without fee or reward, had served on the commission of sewers ever since it was constituted; he referred to his friend, Deputy Harrison, who represented one of the largest constituencies in the metropolis. He would move that Mr. Harrison be appointed chairman for the day.

Mr. HOWS seconded the motion.

A MEMBER OF THE BOARD asked Mr. Harrison if he were a candidate for the office of permanent chairman.

Mr. HARRISON: My answer is, that I am not a candidate; but I am prepared to accept office if appointed.

Mr. ALEXANDER WRIGHT: Do you, Mr. Deputy Harrison, intend to accept office as permanent chairman if appointed?

Mr. HARRISON: I do not want to be placed in a false position before the public.

Mr. A. WRIGHT: I think whoever takes the chair to-day should be prepared to say that he will not accept office.

Mr. HARRISON: I must be excused saying more than I have done already.

A MEMBER proposed that the names of all the gentlemen present should be put into a box, and the man whose name was first drawn should be selected as chairman for the day.

Mr. WRIGHT thought it was but right to pay the City of London the first compliment, by asking one of its representatives to take the chair. As that gentleman, however, was likely to be a candidate for the chairmanship, he thought the offer should be made to the representative of Marylebone, which was one of the largest and most important constituencies in the metropolis. He should be glad to see Mr. Nicholay in the chair—a gentleman who had laboured so long and so successfully in the cause of reform generally. He (Mr. Wright) wished to know whether Mr. Nicholay was prepared to decline the office of permanent chairman, if asked to serve.

Mr. NICHOLAY stated that he had no intention whatever of being a candidate for the paid chairmanship of the board.

Mr. WRIGHT then moved, "That Mr. Nicholay be elected chairman *pro tem.*"

Mr. CORRIE seconded the motion, which, after some desultory conversation, was agreed to.

Mr. NICHOLAY, on taking the chair, said he had not anticipated so high an honour would have been conferred upon him, or he would have prepared himself with the act of Parliament, and offered some few observations upon the subject of the very important duties they were called upon to perform. (Hear, hear.) They were there as the representatives of the different localities of this vast metropolis, to commence their labours upon a great and important work of public utility, and they were much indebted to the Government for having placed that mansion at their disposal. They had assembled by virtue of an act of Parliament, and he thought the first business would be to ask some gentleman to act as honorary secretary *pro tem.*, and then to read the list of the gentlemen returned as representatives to that board. (Hear.)

A MEMBER observed that there were some gentlemen present who were not members of the board.

The CHAIRMAN: I was coming to that. I think the first thing we have to attend to is to ascertain who are present, and also if there is any one connected with the establishment who will receive vouchers from gentlemen professing to be representatives.

A Gentleman, who stated that he was connected with the house, said he would do so.

Mr. THWAITES then suggested that some gentleman, who was not a candidate for the chair, would undertake the duty of honorary secretary.

The CHAIRMAN hoped Mr. Wilkinson, one of the gentlemen representing St. Pancras, and who was not a candidate for the office of chairman, would undertake the duty of honorary secretary.

Mr. THWAITES: Is it necessary for gentlemen to produce any certificate of membership of this board?

Mr. WILKINSON said he was no candidate for the office of chairman, but might be hereafter. On this occasion he was willing to act as honorary secretary.

The meeting accepting, Mr. WILKINSON took his seat beside the chairman, and stated that he had before him a printed list of the gentlemen returned to serve on the board. With the permission of the board, he would call over the names, and hoped every gentleman present connected with the board would answer to his name.

Mr. WILKINSON then proceeded to call over the list of names, and declared (at the conclusion) that there were only forty members present. [As Mr. Thwaites represented two constituencies, the absentees would only amount to four.]

Sir JOHN SHELLEY, when his name was called, said that, as some doubts had been expressed about the legality of his return, he wished to show his right to be present. He would read the voucher for his being duly elected.

A MEMBER having objected,

The CHAIRMAN declared that Sir John Shelley was quite in order.

Sir J. SHELLEY then read his appointment, which was officially signed by Mr. Buzzard, vestry-clerk of St. James's, Westminster.

Mr. L. TAYLOR asked if the list read was official.

Mr. WILKINSON: This list is not of my preparation; it is not an official list; but, being the only one I have, I have used it as a matter of convenience. If any gentleman have an official list, of course I should prefer it.

Sir JOHN SHELLEY: I think it right to state, as a member of the Commissioners of Sewers, that no list was published by the commissioners. I made inquiries on this point yesterday, and was informed that no such list had been prepared, although the staff of the court had been employed for the purpose. I understand that Mr. Jebb was willing to pay the expenses of such a list. There is at present no official list whatever.

Mr. TAYLOR said he was glad to hear that there was no official list, because the City of London had been placed at the bottom, instead of at the top. (Laughter.) He had in his hand a correct list with regard to names. His own name had not been put down correctly in the list that had been read. [Mr. Taylor then handed in his list.]

The CHAIRMAN said, they would be happy to make use of Mr. Taylor's list, and to remove any impression that discourtesy was meant to the City of London.

Mr. BURSLEM, of Paddington, produced his voucher, and expressed his opinion that every member should afford some proof of his election.

Mr. WRIGHT thought the list read would be sufficient for their present temporary purpose, but would suggest, as the proper course, that a committee be appointed at once to receive credentials and report to the next meeting. A report should be sent in by the chairman of the several vestries. He would therefore move, "That a committee of five gentlemen, whose credentials were produced before the chairman on the present occasion, should be appointed to receive the credentials of members, and report to the chairman."

A MEMBER: Then you will also want evidence of identity.

Mr. CRELLIN thought it was quite necessary they should be sure that there was no person in the room that was not a member.

Mr. D'IFFANGER: As to there being no person in the room but members, he hoped that no gentleman would wish for a moment to exclude the press. He hoped also that the public, so far as there was accommodation, would be admitted. He did not think any gentleman would take part in the proceedings unless he had authority to do so. All the members were present without any special summons beyond the notice in the *Gazette*, but he thought it quite superfluous to appoint any committee for the examination of credentials.

Mr. CRELLIN said he did not want the meeting to be private, nor the public press excluded.

Mr. HOWS could not conceive it possible that any one would presume, without authority, to take part in the proceedings of the board. He was anxious, however, that at their first meeting they should start fairly. He hoped there would be no interference with the sound policy of having their proceedings public; such a course would be highly dangerous to the representative principle. He trusted, therefore, that, so far as their space permitted, the public and the public press would be accommodated. There could be no doubt that every gentleman who had answered to his name had been duly elected. He

took it for granted that no official person was present for the purpose of guiding their proceedings. The Government, having placed that comfortable room at their disposal, had shown good sense in not offering any interference with respect to their proceedings. The constitution of the board was an admission of the value of the representative principle, and he had no doubt the board would do nothing to bring that principle into disrepute.

Mr. DALTON quite agreed with the gentleman who spoke last, and suggested that, in order to prevent confusion, all the members of the board present, and no one else, should take their seats at the board.

The CHAIRMAN having make a request to the same effect,

Mr. CHALMERS hoped the gentlemen of the press would have such accommodation afforded to them as would enable them to take their notes in comfort.

Mr. L. TAYLOR did not think any gentleman would think of voting if he were not a representative; he therefore thought their best course was to proceed at once to the business of the meeting; and he thought the first thing that should be done was to determine the salary of the chairman.

The CHAIRMAN cordially concurred in the sentiments which had been expressed. They were assembled to carry out the provisions of one of the most important acts of Parliament which had ever passed the legislature—a measure which conferred upon the entire metropolis the privileges of local self-government, and one which he hoped that board would carry out with satisfaction to the ratepayers of the metropolis and credit to themselves. (Hear, hear.) The first business of that board was to elect a chairman; but before they did that, he (the chairman) agreed with the representative of the City of London, that the proper course would be to fix that which should be the salary of their chairman. (Hear, hear.)

Mr. HUNT: According to the 49th section of the act of Parliament, you should elect the chairman first.

Mr. L. TAYLOR said he read the clause differently. The 49th section of the Local Management Act provided "that the members shall meet at such time and place as her Majesty's Principal Secretary of State shall by notice in the *Gazette* appoint on this behalf; and shall at such meeting, or adjournment of such meeting, elect a chairman of the said board; and shall also decide on the amount of salary, such salary not to be less than £1500, and not to exceed £2000." Now, although it was true that in the same clause they were required to elect a chairman and determine on the amount of salary, yet the latter part of the clause might be taken first, according to the discretion of the board. He, for one, regretted that the minimum amount of salary for the chairman was fixed at so large a sum as £1500 by the act of Parliament. (Hear, hear.) He should have thought that £1000 per annum would have been a sufficient sum—(hear)—but, as the Legislature had fixed the minimum salary at £1500, they had no alternative, except to do that which he (Mr. Taylor) proposed to do, namely, to make that which was fixed as the minimum salary for the chairman the maximum. (Hear.) He would not lead any candidate to suppose that in the course of six months after his appointment, either by dint of his great zeal or ability, or any other circumstances, he would have a right to expect an increase of his salary from £1500 to £2000. He thought that £1500 should be at once fixed as the maximum salary of the chairman of that board. (Hear, hear.) Mr. H. L. Taylor concluded by moving as a resolution, "That the permanent salary of the chairman of the Metropolitan Board of Works be fixed at £1500 per annum."

Mr. D'IFFANGER seconded the resolution. He congratulated the City of London upon the circumstance that this motion had emanated from one of its representatives, as, from the antecedents of the corporation, they might not have expected such economy. ("Hear," and a laugh.) The representatives of that board had been elected to perform an important trust as a matter of honour, and without any fee or reward; and they were bound, as honourable men, to protect the pockets of those who sent them there. (Hear.) It was their duty to work out the Metropolis Local Management Act with efficiency, but, at the same time, with strict regard to economy. (Hear, hear.) The eyes of the entire metropolis were upon them, and therefore the first step the board took upon such a subject was of the highest importance. (Hear.)

The resolution was put and carried unanimously.

Mr. HOWS said, the mode of electing the chairman seemed naturally to follow the resolution they had just passed, and it would be convenient to know who were the candidates. His opinion was that the chairman should be a person who should represent the feelings of a large proportion of the members of the board. (Hear, hear.) The number of candidates increased every day, and it might be desirable to decide which two or three of them had the largest number of supporters in the board, and then to choose the chairman from that limited number. There were two points to be considered; first, whether they would have the whole of the candidates before them, and select the most eligible; and, then, whether the mode of election was to be by open voting or by ballot.

The CHAIRMAN said, as this was a preliminary meeting, he presumed they would not elect the chairman to-day. (Hear, hear.) They would merely ascertain who were the candidates, and then adjourn to another day, on which they would decide the election. There was one question touching the chairman which he thought most important, and that was, whether it was necessary that he should be a member of the House of Common. ("Hear, hear," and disapprobation.)

Mr. CHALMERS thought it was desirable to determine whether the chairman should be elected from among the members of the board—men who were returned by the votes of their constituents—or from persons out of doors. The act of Parliament permitted them to take either course; but he thought it would be hardly a compliment to to those persons who had gone through the siftings of two elections, to suppose that none of them were competent for the office of chairman.

Mr. CRELLIN moved, "That the mode of electing the chairman should be by ballot;" but the motion was not seconded, and it fell to the ground.

Mr. WRIGHT proposed that the election should be by open voting on a show of hands, and in the event of a dispute, be determined by a division in the ordinary way.

Some conversation ensued on this proposition, in which Mr. SNOW, Mr. SEELEY, and others took part, and it resulted in the motion for open voting being carried with but a single dissentient.

Another resolution was adopted, on the motion of Mr. F. Doulton, seconded by Mr. Dalton, for gradually narrowing the choice of the board to the two candidates who should ultimately be found to have the greatest number of votes.

Mr. H. L. TAYLOR thought the time had now arrived when all the members of the board who intended to become candidates for the chairmanship should declare themselves, and when the board ought also to define the time within which they would receive and entertain applications for the appointment from other quarters. By making the time public up to which they would receive such applications, they would be acting in the spirit of the act of Parliament, and the election would be divested of everything having the appearance of a job. (Hear, hear.) He moved, "That they should now receive applications from any gentleman of the board who was desirous of filling the office of chairman."

Mr. SAVAGE seconded the motion.

Deputy HARRISON suggested that it would be more desirable to determine the day on which they would proceed to the election of the chairman, and that, in the interval, they might receive the names of gentlemen who wished to become candidates. He moved, "That the board, at its rising, do adjourn until Saturday next, at twelve o'clock, up to which period the names of gentlemen who wished to offer themselves as candidates for the office of chairman should be received by the temporary chairman at Burlington House."

Mr. DIXON said, it should go fairly forth to the public that the board was open to receive applications for the chairmanship from any quarter. (Hear, hear.)

Sir JOHN SHELLEY said, it was difficult at present to know who was or who was not a candidate. In the early part of the day the question was, whether Mr. Thwaites or Mr. Harrison were candidates. Each gentleman who intended to put himself forward as a candidate for the chairmanship would take the course he thought right and proper; but he, for himself, felt it was not a proper course to pursue to make a private canvass for a public appointment like that. (Hear, hear.) He had done nothing more than simply to state that, in the event of this board deeming him a fit and proper person to fill the office of chairman, he was prepared to assume that office. Then was he, or was he not, a candidate? He did not at present know wnether he was or was not a candidate in the opinion of the board; but he should not think of sending his name formally in to them as a candidate. He was only a candidate in the event of the board thinking him a fit and proper person to fill the situation of chairman.

Mr. CRELLIN said, they ought publicly to advertise the time within which they would receive applications for the office.

Major LYON wished to know what constituted a candidate. If it was known that gentlemen might send in their names as candidates up to a given time, the number would become legion. (A laugh.) He did not see why they might not have 5000 applications. For his part, he feared the numbers calling on him, under such circumstances, would be so great that he would go out of town to avoid the nuisance. He thought the board ought at once determine who was and who was not to be considered a candidate. He wished to know, in other words, whether a candidate would require a proposer and seconder; and if so, whether such proposer and seconder should be members of the board. What they wanted was the best man for the office, and they ought to take him wherever he was to be found. (Hear, hear.) He did not think it was necessary that they should have an engineer as their president. A gentleman possessing that which was so difficult to describe—the power of presiding with ability, dignity, and temper over a body of gentlemen assembled to deliberate upon the important matters entrusted to them by this act of Parliament—was the man whom they ought to appoint to the office of chairman.

The CHAIRMAN suggested that, if a committee were appointed to receive the names of candidates, and to lay them before the board at the next meeting, it would save much time. (Murmurs of disapprobation.)

Mr. DAVIS said, they wanted nothing more than a man of ordinarily strong mind and good business habits, and who would be above mixing himself up with either one party or another in the board. (Hear, hear.) The time was gone by when they must go and throw into the lap of any gentleman who might present himself for such an office a certain amount of money; and, irrespective of the question of salary, they ought to elect a man in whom they had the greatest amount of confidence.

Mr. WILKINSON said, the motion and amendment were not inconsistent with each other. He thought it would be hardly consistent with their own dignity to rush into the papers, as had been suggested, and advertise for a chairman; and, unless a candidate had sufficient influence in the board to induce some one to propose and second him, he might be sure he was not wanted. The motion might be thus put to suit both parties:—"That the board do now receive applications from any gentlemen desirous of becoming candidates for the office of chairman."

The motion, as thus altered, was then carried, there being only three disssentients.

Mr. Deputy HARRISON then moved, "That the board at its rising adjourn till Saturday next, at twelve o'clock, up to which time the names of candidates be received."

Mr. MISKIN seconded the motion.

Mr. DALTON thought they should have a few clear days for consideration after the names of all the candidates were before them.

Mr. SAVAGE concurred in this suggestion.

After some further conversation, the motion of Mr. Taylor was put and carried, three of the members dissenting.

Mr. OFFOR said, as a candidate for the chairmanship, he felt the same difficulty in which Sir John Shelley found himself. He thought it a little indelicate that they should ask a candidate to nominate himself. The more desirable course would be, that he should be nominated and seconded in writing by two members of the board.

The motion was then put and carried unanimously.

The motion of Deputy HARRISON, fixing Saturday at twelve o'clock as the time to which the board at its rising should adjourn, and up to which the names of candidates for the office of chairman would be received, was then put and carried unanimously.

A short discussion followed as to the mode to be observed in the nomination of candidates; and it was eventually agreed, on the motion of Mr. TURNER, that they were to be nominated and seconded by members of the board; that they themselves were to have the privilege of being present at the election, and the discussion preceding it, whether they were members of the board or not; and that no candidate was to be eligible for election unless nominated and seconded by members of the board. It was left an open question whether at the meeting on Saturday the board would come to a decision on the election, or postpone their determination to a future day.

Mr. THWAITES reminded the meeting that no question could more affect the well-working of this board than their choice of a chairman. He certainly hoped it was their intention thoroughly to sift the merits and demerits of every man who might be put in nomination for the office. (Hear, hear.) The members of the board were most of them strangers to each other, and discussion might probably bring out the merits and demerits of the several candidates, and enable the members to arrive at a proper conclusion. He threw out that as a suggestion, lest the several resolutions to which they had come might only have the effect of tying their hands in canvassing the qualifications of the candidates.

Sir J. SHELLEY said it was not right that those who were prepared, if called on to take the office of chairman, if they were public men, should enter upon a private canvass. He, therefore, should not ask the opinion of any individual member of the board with reference to himself. Was it likely that any man would put his name to an application for the office without knowing that he would have a proposer and seconder? He, for one, would not do so, nor did he think any man would do it who was animated by a proper feeling of pride, or who had a character to lose. As the matter stood at present, he did not know whether he could come to this board on Saturday and be sure that he would have a proposer and seconder. He did not think that was a desirable position in which to place a gentleman.

Major LYON said, the honourable gentleman would understand that no one who had not a proposer and seconder would be eligible. (A laugh.)

Sir J. SHELLEY said he was aware of that, of course; but, he repeated, it was not a fair position in which to place any one.

Mr. H. L. TAYLOR thought it desirable that it should be understood, if such was the feeling of the board, that the chairman, whoever he might be, would be expected to devote the whole of his time to the duties of the office.

Mr. Deputy HARRISON regretted that his friend Mr. Taylor had only suggested and not moved upon this important subject. He would move that the following be inserted in the advertisement:—"That from the important duties which will devolve upon the chairman of this board, the gentleman elected will be required to devote the whole of his time to the discharge of those duties."

Mr. SAVAGE seconded this resolution.

Captain LYONS should like to know what "devoting the whole of his time" meant? Did it mean that professional men were to give up the whole of their professional business, or that members of Parliament, if one were elected, should give up their seats?

Mr. Deputy HARRISON thought it would be rather a question for those who offered themselves to define what it meant than that board.

Mr. CRELLIN supported the motion.

Mr. HOWS said, the duties of the office of chairman were so great that they would require all a man's time; and he thought the resolution, if adopted, would act as a check on many incompetent persons who otherwise might offer themselves.

Sir J. SHELLEY considered the resolution altogether unnecessary, and one to which they should not agree in a hurry.

Mr. D'IFFANGER said, Sir John Shelley appeared to argue as if it was absolutely necessary that they should have a chairman who was a member of Parliament. (Hear, hear.) He could see no such necessity; for if they wanted to have any parliamentary business done, he was sure that Sir Benjamin Hall or some other metropolitan member could be found to do it. (Hear.)

Mr. WRIGHT could not allow the motion to pass without protesting against it. Why should they, at the end of a meeting like this, pledge themselves to a proposition only made a few minutes before? (Hear, hear.) He thought the expression of opinion just made was quite sufficient, without binding the meeting further. If the resolution were to go forth to the public, it would debar any one having large private concerns to attend to offer themselves as candidates. He thought the meeting should come to no resolution on the subject.

Mr. DAVIS: What is the meaning of "giving the whole of his time?" If you come to such a resolution, no man with a clear head and aptitude for business will come near you. Instead of getting a first-class man, you will be only getting a third or fourth class man.

After some conversation,

Mr. Deputy HARRISON, with all respect to Sir John Shelley, considered, when he saw the talent round that board, that they should propound such a scheme of public works that they would require no advocate before Parliament to carry it out. (Hear.)

A show of hands was taken for and against this resolution, and the proposition was carried by a majority of 24 to 10.

Mr. HARRISON then moved, "That the last resolution be inserted in the advertisement."

Mr. SAVAGE seconded the motion.

Mr. WRIGHT and Sir J. SHELLEY having severally protested against the motion, it was put to the meeting and carried.

Mr. HOWS rose to propose a resolution to the effect, "That the thanks of the board be presented to the Government for the use of that splendid apartment." (General cries of "No, no," ensued before he could finish the sentence.)

Mr. D'IFFANGER: No flunkeyism. (Hear, hear.)

Mr. CARPMAEL, Wandsworth, moved, "That the best thanks of the meeting be given to Mr. Josiah Wilkinson for the able manner in which he had discharged the duties of honorary secretary that day."

Mr. D'IFFANGER seconded the resolution, and it was carried *nem. con.*

Mr. CORRIE then moved, and Mr. LOWMAN TAYLOR seconded, a vote of thanks to Mr. Nicholay for the able and impartial manner in which he had discharged the duties of chairman.

The CHAIRMAN expressed his acknowledgments, and the proceedings were adjourned till Saturday, the 22nd of December.

SATURDAY, DEC. 22.

ELECTION OF CHAIRMAN.

The adjourned meeting of this board, for the purpose of electing a permanent chairman, took place at Burlington House, on Saturday, the 22nd ult., at twelve o'clock at noon.

All the members of the board were present, except Mr. Dixon, of Limehouse; Mr. Carpmael, of Wandsworth; and Mr. Irvine, of Camberwell.

A large number of the public, who appeared to take a deep interest in the proceedings, were present. Among these we observed J. A. Roebuck, Esq., M.P.; Bernal Osborne, Esq., M.P.; and many of the leading men of the respective vestries.

Mr. NICHOLAY was unanimously voted into the chair.

Mr. WILKINSON, having been requested to act as honorary secretary, read the minutes of the first meeting, which, on the motion of the chairman, were confirmed.

Mr. WILKINSON said he wished, before the regular business of the meeting was commenced, to read a communication he had received from Sir Benjamin Hall. They would perceive by the 49th section of the act under which they were assembled, that the power given them by the Secretary of State to hold their first meeting in Burlington House was exhausted, and consequently it devolved on the board to find a place of meeting for themselves. He (Mr. Wilkinson) had therefore taken the liberty, which he hoped was justifiable, to write to Sir B. Hall, requesting to be allowed to hold the next meeting at Burlington House, and had received from the right honourable baronet permission to continue their sittings there for a certain limited period.

Mr. L. TAYLOR then moved, "That the offer of Sir Benjamin Hall be accepted, and that the correspondence be entered on the minutes."

The motion having been seconded, was agreed to.

A vote of thanks was also accorded to Sir B. Hall, for his courtesy in granting the use of the rooms.

The CHAIRMAN: As we are not so well acquainted with each other as I hope we shall shortly be, and as the newspapers are anxious to give an intelligible report of the proceedings of the board, I think the name of each member who speaks ought to be announced.

Mr. FEW wished to draw the attention of the board to a principal subject of the last meeting, viz., the salary of their permanent chairman. He was convinced that, if the board was compelled to elect by act of Parliament a paid chairman, they would feel with him that the duties of their office should be performed by themselves, and not by the paid chairman.

The CHAIRMAN read a resolution of the last meeting, "That the list of candidates for the office of permanent chairman of the board should be read; that every member had a right to propose a candidate; but in the want of a self-named candidate not being proposed and seconded by members of the board, his name should be struck off the list."

Sir J. SHELLEY, M.P.: In consequence of what has appeared in the the public prints since the last meeting, I have thought it my duty to send a letter to the chairman *pro tempore*, which I hope the board will allow to be read. I also thought proper to write to him, in consequence of the resolution passed at the last meeting, that the permanent chairman should devote the whole of his time to the duties of his office. I considered that, in consequence of that resolution, it was not competent for any one in the public service to accept the office of chairman. That resolution implied that no one engaged in the public service was fit to discharge the duties devolving on the board. (No, no.) Well, I came to that conclusion because I was asked whether, in the event of my being elected, I was prepared to resign my seat as member for Westminster? The answer I then made privately to the questioner I shall now make publicly: I have too much regard for my position as member of Parliament to resign that position in order to be chairman of this board. I feel it, therefore, my duty to state, that I shall be no longer a candidate; and that, if the chairmanship were offered to me, I should not accept it. I now request, therefore, that my name may no longer appear in the list of candidates; and I feel it due to me that that letter be read, in order that the public may know the grounds on which I retire.

Mr. H. L. TAYLOR did not think it was required of any gentleman to devote all his time to the discharge of the duties of chairman. Sir J. Shelley was mistaken if he thought that a member of Parliament was not a fit person for the situation. If a member of Parliament were fit in all other respects, his being a member of Parliament rendered him still fitter for the office of their chairman. He would advise Sir J. Shelley to reconsider and change his opinion. He did not think it was the feeling of that meeting that the honourable baronet should resign his seat for Westminster in the event of his election to the chairmanship of the board. He did not know who put the ques-

tion referred to, but it certainly was not the feeling that pervaded the board; and he (Mr. Taylor) therefore hoped Sir J. Shelley would not retire under that misapprehension.

Sir J. SHELLEY: I will venture to assert that, if the opinion of the board be what Mr. Taylor has stated, no one will more cordially rejoice on that account than myself. But I went from this room on Wednesday last with a certain conviction on my mind that the general impression was that no man could perform the duties of your chairman if he had other duties to attend to; and that, consequently, no member of Parliament was eligible. Under that conviction I gave up any personal canvass. I have perceived, however, from the public prints, that there is a gentleman about to be named (Mr. Roebuck) who is a member of Parliament; and if I had known for a moment that that gentleman was prepared to take the chairmanship, I would consider it the height of presumption on my part to oppose him. If Mr. Roebuck should be selected, nobody will rejoice in that circumstance more than I.

Mr. D'IFFANGER wished to know whether it was competent for them to alter any resolution come to at the former meeting?

Mr. SEELEY said it was necessary for them to decide, before they commenced business, what business they were determined on doing.

Mr. HOWS: We should proceed with the election of chairman—the chief business of the day—but we should not tie ourselves to any particular course.

Mr. CHALMERS suggested that Sir John Shelley's letter should be read.

The meeting having agreed to this, the honorary secretary read the following letter:—

25, *Park Lane, Dec.* 20, 1855.

Sir,—A few days back, at the suggestion of others, I issued a letter addressed to each member of the Metropolitan Board of Works, stating that I was a candidate for the appointment of chairman of that board; but in consequence of a resolution arrived at at the meeting yesterday, the effect of which appears to me to be that no one who is engaged in the public service is eligible for the appointment, I have to regret that you will not insert my name on the list of candidates to be read at the meeting of the board on Saturday next.—I am, sir, your obedient servant,

JOHN VILLIERS SHELLEY.

To the chairman *pro tem.* Metropolitan Board of Works.

Mr. WILKINSON: I would propose that, first of all, the list of names of candidates should be read, without reading the letters to the board of any gentleman who has not a proposer and seconder.

This proposition having been agreed to, the honorary secretary read the following list:—Jas. Baker; G. R. Booth, civil engineer; George H. Buckton, Wm. Burch, G. F. Carden; Sir C. De Crespigny, Bart.; Wm. Corrie, Edward Harrison, D. Hawes, Richd. Jebb, W. J. Neale, G. Offor; the Honourable Jocelyn Percy, M.P.; J. A. Roebuck, M.P.; Arthur Symonds, John Thwaites, and Thomas Turner. These were all the names of the candidates sent in since the former meeting; but if any gentleman present had a candidate to propose, his name might be then added to the list. (No answer.)

The CHAIRMAN then proceeded to go through the names *seriatim*, and Messrs. Baker, Booth, Buckton, and Burch, having no one to move in their behalf, were severally struck off the list of candidates.

The name of Carden having been read, and there being no one to propose him, the chairman was about to strike his name off the list, when

Sir J. SHELLEY inteposed. He thought that every gentleman who had offered himself to the board should have his letters read, in order that the meeting might know what were their pretensions, and the grounds on which they came forward. He would therefore move, "That the letters of those gentlemen should be read." (Oh, oh.)

Mr. CHALMERS seconded Sir J. Shelley's proposition.

A MEMBER: If the letters should be read, they would be kept there all day to no useful purpose.

The CHAIRMAN read the resolution of the last meeting, touching striking off the list any name not duly proposed and seconded.

Sir J. SHELLEY did not think they were showing proper respect to the candidates who had written letters to the chairman anouncing their intentions. He would propose every one of them, and begin with Mr. Carden, although he did not know him. (Laughter.)

After a brief discussion, in which Mr. D'IFFANGER, Mr. TURNER, Mr. SNOW, and Major LYON took part, as to the propriety of the letters alluded to being read,

The HON. SEC. said, as Sir J. Shelley's motion is not inconsistent with any previous, the motion may be put.

The CHAIRMAN then moved the reading of the letters from candidates, whether proposed, or seconded, or not. The resolution was put and rejected, there being only four hands held up in its favour.

The CHAIRMAN: Mr. Carden is one of the candidates that has been proposed and seconded.

The name of Sir C. D. Crespigny was proposed by Sir J. SHELLEY, but was not seconded. (Struck off the list.)

Mr. HOWS, speaking to a point of order, said it would be very injurious to their proceedings if gentlemen proposed and seconded candidates for whom they would not afterwards vote.

Mr. Corrie (police magistrate) was proposed by Sir. J. SHELLEY, and seconded by Major LYONS.

Mr. Deputy Harrison was proposed by Mr. HALL, and seconded by Sir J. SHELLEY.

Mr. T. Hawes, of the late Sewers' Commission, was proposed by Sir J. SHELLEY, and seconded by Mr. CHALMERS.

Mr. R. Jebb was proposed by Mr. HUNT, and seconded by Mr. PASCALL.

On Mr. J. Neale's name being read,

The CHAIRMAN: Are we again to look to you, Sir John?

Sir J. SHELLEY: If you please. (Laughter.)

Mr. Neil not having been seconded, his name was struck off the list.

Mr. G. Offor was proposed by Mr. Hows, and seconded by Mr. SNOW.

Mr. OFFOR begged leave to withdraw his name, as he saw several names of gentlemen proposed and seconded more able than he was to discharge the duties of chairman.

Mr. HOWS was sure that neither Mr. Snow nor himself wished to press their proposal.

The name was then erased.

The Hon. Percy Jocelyn, M.P., was proposed by Major LYON, and seconded by Mr. CHALMERS.

Mr. Roebuck, M.P., was proposed by Major LYON, and seconded by Mr. HUNT.

Mr. Arthur Symonds was proposed by Sir J. SHELLEY, but, not having been seconded, his name was struck of the list.

Mr. J. Thwaites was proposed by Mr. D'IFFANGER, and seconded by Mr. COLLINSON.

Mr. Thomas Turner was proposed by Capt. BURSLEM, and seconded by Mr. CORRIE.

The CHAIRMAN: I have now gone through the list of candidates, gentlemen.

Mr. MISKIN said he did not think justice had been done to the three or four gentlemen at the top of the list, whose names had been struck off because they had not proposers and seconders. He thought they should be placed in the same position as those who had been since proposed, for the mere purpose of giving them an opportunity of making their merits known to the board.

Mr. FEW said, before they proceeded to the election of a chairman, he begged to move the following as a resolution:—"That, before proceeding to elect a chairman, this board desires to record its opinion that it is expedient that the provision in the act 18th and 19th Vict., c. 120, compelling the election of a paid chairman, should be repealed; and that every candidate for that office be requested to give a pledge that, if elected, he will resign his position as chairman, in the event of Parliament repealing the provision in question." [The reading of this resolution was met with a general cry of "Oh, oh."]

Mr. DOULTON rose to order. The board had already fixed the salary of the chairman at £1500 per annum. (Hear, hear.)

Mr. D'IFFANGER was surprised that any gentleman elected under the new act should try to alter the act before he knew how it would work.

The CHAIRMAN ruled that, at that stage of the proceedings, the resolution was out of order, but that the subject might be entertained at a future time.

Mr. FEW said that he certainly should press the resolution at a fitting opportunity.

Mr. WILKINSON then read Mr. Carden's letter to the board, in which he set forth that he was the sole founder of the new system of ex-suburban cemeteries and of the centralisation of taxation, which he advocated in a letter to the *Times* in 1851, and which was now the Government scheme. He was also the author of a plan of general registration of births, deaths, and marriages; had great experience in army accounts, and was a barrister-at-law.

The CHAIRMAN said he should now call upon the various movers and seconders of the respective candidates to speak on behalf of the gentlemen nominated, and then upon the candidates themselves, if they had any observations to offer. The first gentleman nominated was Mr. R. W. Carden, and he called upon Sir John Shelley and Mr. Chalmers, as his mover and seconder, if they wished to speak in Mr. Carden's behalf. There being no response,

Mr. CARDEN, in obedience to the call of the chairman, addressed the meeting. He stated that he had devoted a vast deal of attention to the subject of sewage and drainage, and the general amelioration of the sanitary condition of the people of the metropolis; and as a ratepayer in eight parishes, he was much annoyed by the burdens of taxation. He had written much upon the past system of management, and was a barrister-at-law, and prepared to devote his time to the duties of chairman, if elected.

Mr. William Corrie, the police magistrate, was the next candidate in rotation; and Sir John Shelley and Major Lyon, as his mover and seconder, were called upon.

Major LYON said he had merely seconded Mr. Corrie upon the same principle that Sir John Shelley had proposed that gentleman, in order to give him an opportunity of coming before the board.

Mr. CORRIE, having addressed the board at some length,

Mr. H. L. TAYLOR asked Mr. Corrie, if elected to the chairmanship of that board, was it his intention to resign the appointment he at present held as a stipendiary magistrate?

Mr. CORRIE had not the slightest hesitation in saying yes. (Hear.)

Mr. HALL, as the proposer of Mr. Deputy Harrison, spoke in strong terms of the fitness of that gentleman. He had been connected with the great public works which had been carried out in the City for many years, more especially in the direction of the sewerage of the City; he was a man who answered the description given of what was required, namely, a man of strong common sense and business habits, and had ever been the advocate of economy in the expenditure of public money. (Hear.)

Mr. Deputy HARRISON: I find myself in a rather delicate position, for I had not the most remote notion, when I entered this room, of being proposed as chairman of the board. It is an exceedingly painful thing for a man to speak of himself, and therefore I feel proud of the manner in which a gentleman, representing the City of London, has proposed me. I feel also that a great compliment has been paid through me to the City of London. My public conduct has extended over a period of eighteen years. I was unanimously elected to represent a distinguished ward, and placed on the Improvement Committee of the corporation. The vast works which have been executed in the City of London during those eighteen years must be familiar to every one. The City of London Bridge and several new streets were the results of the labours of that committee. I have taken an active part in most of those pnblic works, and from the experience I have had as a member of that board, I think I may be found useful in my new position. Although continuing on that committee, I was also appointed as a member of the Finance Committee of the corporation; and, as its chairman, I searched into the affairs of the corporation, to ascertain exactly how much of our funds we could dedicate to public works in

each year. One result of that inquiry was the new Coal Exchange. I was on the Commission of Sewers the whole of this time. About eight years ago I moved for a committee of inquiry into the great gas question. I obtained that inquiry on public grounds, and after three years of hard work and persevering progress with that question, Parliament passed a bill by which a great reduction was made in the price of that article. That was three years of the hardest work I ever had in my life; but I took the matter up on public grounds, and I persevered until my efforts were crowned with success. In 1848, the first sanitary bill was passed, which authorised the Commissioners of Sewers to take into their charge the health and comfort of those residing in the City of London. I have taken an active part in all the proceedings of that commission; and, although not a lawyer, the business of that commission is well understood by me. I have over and over again received from the corporation the compliment of being put in eminent positions, although I never asked any one for his vote. Well, it is said that I am in business, and therefore hardly qualified to take on myself the duties connected with the office of chairman; but if I have the honour to be elected, I shall, as an honourable man, accept the office on the condition of devoting my time and talents to the discharge of those duties. It would be expecting too much from me to call upon me now to state that I have made arrangements for giving up a valuable business; but I shall, if elected, give my mind and attention to the duties of the office. I shall now exemplify one of the necessary qualifications of a chairman, by not making a long speech, but by sitting down now and leaving the matter entirely in your hands. I feel it to be an honour to be opposed on this occasion by some of the candidates; and if I be not elected, I shall still, as a member of the board, give my best assistance in carrying out those great works of public utility for which the board has been called into being. (Cheers.)

Mr. T. Hawes (whose nomination was moved and seconded without comment by Sir J. Shelley and Mr. Chalmers) then briefly addressed the board. He said he had been a commissioner of sewers for seven years, and had diligently attended to the duties devolving upon him in that capacity. He presented himself before them as a man of business, who had served an apprenticeship to one of the most important duties to which they would have to devote their time; and, should they honour him by selecting him for the appointment, he should devote the whole of his time and energies to the business of the office. (Hear, hear.)

Mr. Hunt then proposed, and Mr. Pascall seconded, Mr. Jebb.

Mr. Jebb then addressed the board.

Mr. J. Percy, M.P., whose name stood next on the list, was proposed by Major Lyon, and seconded by Mr. Chalmers, as a man of great ability, and one who had devoted much of his time gratuitously to the service of the public. The honourable gentleman was not in attendance, and there was consequently no address from him.

Major Lyon proposed Mr. Roebuck at some length.

Mr. Hunt seconded the nomination.

Mr. Roebuck, M.P., having been asked by the chairman if he wished to address the board, rose and said: Mr. Nicholay and gentlemen—I think I shall best consult my own interest and your convenience by being exceedingly brief on the present occasion. I have not solicited this office. I have been asked to come forward, and I do so now, and I shall tell you "the reason why." But before I state the reason why, I trust you will permit me to refer to the feelings of my own mind upon a matter of which I hope it may not be presumptuous in me to speak. Hitherto, on every occasion on which I have appealed to the suffrages of the people, no man has been able to say that I have done so from any personal considerations of my own, except that feeling of honest ambition which I think ought to distinguish every man in a free country. (Cheers.) But on the present occasion that imputation can be made. It is the first time in my life that I have ever appeared to solicit an office that has been paid, and I have served the public something like three-and-twenty years. Upon that ground, I must say I feel hesitation and something of pain in coming forward. I had hoped that my life would pass away without any one being able to make that imputation; but still I think that the circumstances justify me in making this appeal to you, and I will now tell you why. It appears to me that this is a great experiment. It is the application of the principle of self-government in executive affairs. Hitherto we have had elective bodies legislating for the country—I am speaking now of the House of Commons, which is a legislative body—but here you have an executive body. It is said—and said always by those whom I may denominate the enemies of the people—that they are unable to govern themselves in executive matters. I think they are able to do so—(cheers)—but there may be difficulties in the way of their doing it; and it did seem to me that a man who had given up his whole life to the business of government was well qualified to take the lead, as your chairman must do, in propounding a scheme of self-government in executive affairs. Now, it may be said, and doubtless will be said, that I have no capacity such as your chairman ought to have; but it seems to me that my education, first as a lawyer, and then as a legislator, has taught me to do that which it is essentially the business of your chairman to do,—namely, to weigh and understand evidence. All the schemes which will be propounded to you will not depend on any individual skill; but you will get from all sides such information as the world affords, and you will have to judge of that information; so that your faculty is that of deciding upon evidence. Now, a man who has been trained during his whole life to the investigation of evidence is the man best fitted for the chairmanship of this board. (Cheers.) Add to this a man who has been trained for 23 years in the greatest deliberative body that the world knows, and you will probably think he has had an experience in duration and kind which peculiarly fits him for discharging the duties of your chairman. I have, as you are aware, conducted some very thorny investigations. (Hear, hear.) To two of these I may particularly allude. The first to which I would recall the memory of the board was a very delicate one—namely, the corrupt compromises made respecting elections of members of Parliament; and I may state to you that we conducted that investigation without one single division in the committee; and in the last, in which I took some pride—namely, the Committee on the Army before Sebastopol—(cheers)—we conducted that investigation so that only on two occasions had we a division. Now, I think that shows that there are some imputations made against me which are really not deserved. I must have had many very different interests before me—some hostile, and others not very friendly towards me—and yet, during the whole of that investigation, I was enabled to preserve my authority in that committee, and not to give offence to any one. (Cheers.) There is one other topic to which I hope you will allow me to refer, though it is an entirely selfish one. You all know that I have been a great sufferer in my health; but, thanks to Providence and great care, I am what may be called a regenerated man. I have my time at my command, and I may be said to be pretty much in the condition of an old American who once said, when asked the state of his health, "I am as hearty as a buck, but I cannot jump quite so high." (Laughter.) I feel, however, as all must feel when on the wrong side of fifty, that years are telling upon me; but still I believe that I have the capacity, if I may so term it, to guide your deliberations; and I feel fully capable of performing the duties of the office in question. It has been said that I may not have sufficient time for discharging those duties because I am a member of the House of Commons. Now, I candidly tell you, if I were to put the two offices in competition, I would say I should, with all deference to you, choose the House of Commons; but I believe them to be not incompatible; and let me take this illustration:—You will bear in mind that the Lord Chancellor of England is a member and chairman of the House of Lords. (Hear, hear.) The President of the Board of Works is also a member of the House of Commons, and has legislative functions to perform. Again, the Secretary of State for the Colonies is a member of the same assembly and a cabinet councillor; he also governs colonies spreading all over the whole globe—I don't say that he governs them well—(laughter)—but I mention those circumstances to show that we ought not to form our opinions of a man from his position, but rather from his principles and the energy he brings to bear upon it. I am afraid, gentlemen, I may have exhausted your patience, and I don't wish to take up more of your time. I have been solicited to come forward, and I come forward on that ground. I believe I am fully capable of discharging the duties of the office; and to the performance of those duties, if elected, I promise you I will devote all the energies and all the capacity that Providence has favoured me with. (Cheers.)

Mr. Few proposed, and Mr. Drew seconded, the nomination of Mr. Arthur Rose, father of one of the sheriffs, and grandfather of the under-sheriff of London.

A letter was read from Mr. Rose, setting forth the grounds of his application, and stating that he felt himself qualified for the office by education, temper, talent, and ability. (A laugh.)

Mr. D'Iffanger proposed, and Mr. Collinson seconded, Mr. Thwaites.

Mr. Thwaites: Gentlemen, I will not attempt to trespass on your time on the present occasion. I feel highly flattered in having my name associated with so many honourable men; nor have I a word to say against any one. I have for many years devoted myself to matters of public improvement. I have laboured gratuitously and most sincerely for that purpose, and my acts are known to most of the members present. I have taken an active part in the Metropolitan Commission of Sewers. I have held that peaceful commission from her Majesty. I am attached to peace, and have no desire to change that commission for the sword. I have laboured, in conjunction with the other seven representatives on the Commission of Sewers for the promotion of the public good, and the doing away with certain anomalies which interfered with public improvements. I am, however, as little committed to any system as any man in the court. I have endeavoured on all occasions to fathom the various questions coming before us; and, though there may have been some little controversy between us, yet the practical experience of the board had always, and I believe will again in the present board, overcome every difficulty, and work out the representative principle for the good of the public. (Hear, hear.) I feel an attachment to the representative principle, and shall devote the whole of my time and energies to the development of this great experiment. I shall, if elected as your chairman, so work in your absence that the work you are to consider shall be prepared for you, and your time saved. I shall endeavour to work in harmony with the members of the board, and act in such a manner as shall keep the various district boards in harmony with each other, so that we may work out the great object which the legislature has called upon us to achieve. I have no fear whatever but your votes will be honestly given for those you think best qualified. If elected, I shall take immediate steps to relieve myself from all care and anxiety arising from private business, and devote myself to the service of the public, whose servant I should then be. (Cheers.)

Mr. H. Burslem briefly moved, and Mr. Corrie seconded, the nomination of Mr. Turner, of Hampstead, a member of the board and a magistrate of the county of Middlesex.

Mr. Turner then addressed the board in a short speech.

The whole list of the candidates having been exhausted,

The Chairman inquired whether it was the wish of the board to proceed at once to the election?

Mr. Davis said that he had understood, as did also several other members of the court, that the election would not come off until the following Wednesday.

Mr. Dalton considered the interests of the public would suffer by an adjournment of the election; and as all the candidates were before them, and they were fully acquainted with their various claims and merits, he thought the best course would be at once to proceed to the election.

Mr. Crellin then moved, "That the election be proceeded with."

On the motion being put from the chair, there appeared—

For the motion	21
Against it	6
Majority	— 15

After some discussion as to the mode in which the votes should be taken,

Mr. JOSIAH WILKINSON called over the list of representatives to the Central Board of Works. Forty-one out of the forty-four answered, the three gentlemen absent being Mr. Dixon, of Limehouse; Mr. Carpmael, Wandsworth; and Mr. Irvine, Camberwell.

The list of ten names nominated was then put up to a show of hands, it being understood that those having the smallest number of votes upon each occasion should be struck out of the list. There were seven shows of hands, with the following results. We have arranged the names in accordance with the respective numbers given for each candidate, and not as they were proposed:—

	1st Show	2nd	3rd	4th	5th	6th	7th	Final
Mr John Thwaites	26	25	26	23	26	21	26	30
Mr. Deputy Harrison	17	15	16	16	16	16	13	
Mr. J. Roebuck, M.P.	17	19	18	17	17	13		
Mr. Thos. Turner	14	13	12	12	11			
Mr. Richard Jebb	14	11	13	11				
Mr. William Corrie	12	13	11					
Mr. T. Hawes	9	8						
Hon. J. Percy, M.P.	4							
Mr. G .F. Carden	0							
Mr. Arthur Rose	0							

Mr. WILKINSON explained, that as it was necessary by the act that a majority of the board should vote upon the election of chairman, it would be advisable that a resolution should now be put, that Mr. Thwaites be the chairman of the board. (Hear, hear.)

Mr. NICHOLAY, as chairman *pro tem.*, then put the question—"That Mr. John Thwaites be elected chairman of the board;" and it was carried, 30 votes being recorded in his favour. He was then declared duly elected chairman amidst applause.

Mr. THWAITES, in returning thanks for the honour which had been conferred upon him in electing him to the office of chairman, said, that however the members of the board might be led to regret that his qualities were not of a higher order, he trusted that they would never have occasion to consider him as indisposed to discharge the duties of his office with all the ability and energy which he could bring to bear on the subject. He felt it a high honour to receive so large a number of votes at the final decision of the election; and this fact certainly encouraged him to exert his utmost energies in the discharge of the duties of the post to which he had been summoned. (Cheers.) As there were several preliminary duties to be discharged previous to the 1st of January board, chiefly in respect to appointing the time and place of meeting, he should esteem it a personal favour if the board would nominate a small committee of its members to confer with him on the subject. (Hear, hear.)

The following gentlemen were then nominated as a committee:—The Chairman (Mr. Nicholay); Mr. Wilkinson (in addition to acting as honorary secretary); Mr. G. Offor, Mr. Collinson, Mr. H. L. Taylor, Mr. Hows, Mr. Corrie, and Mr. Deputy Harrison.

Sir JOHN SHELLEY, M.P., said: The official chairman of the board having been appointed, he now felt it his duty to take the earliest opportunity of resigning his seat as a member of the Metropolitan Board of Works. (Great astonishment.)

Mr. D'IFFANGER very much doubted whether Sir John Shelley could resign legally before the 1st of January—an opinion which was coincided in by Mr. Wilkinson and other gentlemen present—as the board did not actually commence its legal functions till that period.

Sir JOHN SHELLEY said that, such being the case, he would content himself with now giving notice that, on the first sitting of the board, he should place his resignation, in writing, into the chairman's hands.

Mr. H. L. TAYLOR thought that Sir John Shelley had exhibited a great amount of taste and good feeling in taking the earliest opportunity afforded him, under the circumstance, of resigning his seat. (Hear, hear.)

It having been resolved that the board should hold its first legal meeting on the 1st of January next, the official chairman, Mr. JOHN THWAITES, said, the pleasing duty now devolved upon him of moving a vote of thanks to their most excellent chairman *pro tem.*, Mr. Nicholay, who had, throughout the two days, conducted the business in the most impartial and business-like manner. (Applause.)

Mr. Deputy HARRISON felt, when he considered the excellent way in which the business had been conducted by the present chairman, highly honoured in being permitted to second this resolution.

The resolution and carried unanimously amidst loud applause.

Mr. NICHOLAY, in responding to the compliment, said that he felt it no small degree of honour that, in the first place, he should have been selected to take the chair; and, secondly, that this vote of thanks had been moved by their now official chairman, Mr. Thwaites, and seconded by a City gentleman. He had ever been ready to discharge his duty for the benefit of the public; and when the time for action came, they would never find him wanting in zeal in aiding in carrying out the great and important objects for which that board had been appointed. (Applause.)

Mr. D'IFFANGER said they had another duty to perform, and that was, to return the thanks of the board to Mr. Josiah Wilkinson, for the most efficient manner in which he had discharged the duties of honorary secretary. (Hear.)

Mr. NICHOLAY felt great pleasure in seconding that resolution, and remarked, that without Mr. Wilkinson's aid he could have done nothing. That gentleman was the bright luminary, and he (as chairman) was, in fact, merely a satellite.

This resolution was carried *nem. con.*, amidst applause; and Mr. WILKINSON having expressed his acknowledgments, the proceedings terminated, after a sitting of upwards of five hours.

TUESDAY, JAN. 1, 1856.

The board this day held their first legal meeting under the act of Parliament by which they are incorporated. There was a full attendance of the members, 44 in number, and the space in the apartment assigned to the use of the public was wholly occupied throughout the sitting. Precisely at two o'clock, Mr. Thwaites, the president of the board, assumed the chair, and the business of the day began by Mr. Wilkinson, one of the representatives of St. Pancras, in his temporary capacity of honorary secretary, reading the minutes of the previous meeting, which were duly confirmed.

The PRESIDENT said, on looking at the section of the act of Parliament giving him the power, in his official capacity, to convene the meetings of the board, there appeared to be some doubt entertained by certain legal gentlemen as to the construction to be put upon that section with respect to the summoning of the first meeting—namely, whether the two clear days' notice he was obliged to give to each member of the first meeting meant two days in December or January, the act coming into operation on the 1st of January. He had consulted several gentlemen on the question, especially Mr. Wilkinson, who had up to this time acted as their honorary secretary, who concurred in thinking that two days' notice in December was a liberal interpretation to put upon the section in question. He had, therefore, convened the board on the very earliest day, it being most desirable and important that he should do so, for the whole of the main sewerage works of the metropolis had this day become vested in them by the operation of the act, and very great danger to the public interests might accrue to those works from any long interregnum taking place before the first meeting of the board. (Hear, hear.) He hoped, therefore, they would think that he had rightly interpreted the section in question, and that they would have now no difficulty in proceeding legally with the business of the day. (Hear, hear.) For instance, the board had a large number of sluicekeepers placed in important positions connected with the sewerage, and any neglect of their functions on their part, arising from the cessation of their engagements with the late Metropolitan Commissioners of Sewers, or from a misunderstanding of their relations to the new board, might result in serious injury to the works in question. He had, therefore, addressed a letter to each of the sluicekeepers to continue to perform their duties until the 15th of the present month. He thought that a very necessary step to take, and he should now have to ask the board for an indemnity for an act which he had thus done on his own personal responsibility. (Hear.) Another matter had called for his immediate attention, and that was the legal position of the several offices and premises held by the late Commissioners of Sewers, which passed to this board by the terms of the act. They had, for instance, in the central office in Greek Street, Soho, in addition to the premises themselves, a number of important public documents, which, if lost, could not be reproduced except at a cost of £60,000 or £80,000. (Hear, hear.) He had, therefore, put suitable persons in charge of the premises in Greek Street, and of the four or five district offices belonging to the late commission, and which now vested in this board, until he received further orders from the board itself. Those preliminary arrangements were rendered absolutely necessary, because all the officers of the Commissioners of Sewers had left the premises on the previous evening, and they would otherwise have been left neglected. It might be necessary on this, the first occasion on which he had filled the office to which the board had done him the honour to elect him, that he should make a few observations as to the course of their future proceedings, and as to the course he thought it necessary for himself personally to take in guiding their deliberations. (Hear, hear.) He must say, first of all, that it was not his intention to take any part in the discussion of any of the questions that would necessarily be raised at this board. (Cheers.) He felt he should not only best consult their feelings but also his own in taking that course, and in abstaining from all party spirit whatever, which he hoped would never be visible among them. (Cheers.) His occupations and duties, in his official capacity of their president, would be of themselves onerous enough without his meddling in the ordinary discussions of this board. With respect to their future proceedings, he felt well assured that a deliberative assembly like themselves, constituted as they were, and representing 2,500,000 people, would always conduct their discussions in a spirit which would be honourable alike to themselves and to the representative principle under which they were embodied. (Cheers.) He hoped there would be no disunion among them, and that they would unite cordially together in carrying out the great public purposes which the Legislature had confided to them. He trusted, too, that they would on all occasions carefully abstain from the slightest reference to political topics. (Hear, hear.) They must all bear in mind that probably within a few months they would have some stirring events in this metropolis. Every one of the members of the board, each in his proper sphere, might entertain common feelings in which all Englishmen would participate, and it might be desirable for them to express their opinions on the proper platform; but he thought he would express the general sentiment of this board when he said they were constituted for a far different purpose, and that they would best consult their own self-respect, and the objects for which they were incorporated, by abstaining from introducing into their discussions all matters whatever of a political kind. (Hear.) He apprehended that the several districts which they represented had sent them to this board from a conviction that they were men of business, and that they came there for the special purpose of watching over and promoting the interests, and the common welfare of this vast metropolis. (Hear, hear.) He hoped, as a representative body, they would prove that, while they were anxious at all times to act in a strict spirit of economy, they would, at the same time, deal with the great and comprehensive questions that would come before them in a kindred spirit and with a vigorous hand. They would remember that they were not legislating for a provincial town, however great or important, but for the metropolis, which had a national interest; and he hoped they would, one and all, bring to the deliberations of the board a

gentlemanly bearing and a unity of purpose which would greatly promote their personal comfort, and facilitate the despatch of public business. (Hear, hear.) He might be permitted to say, that no gentleman would be permitted to speak more than once on any one subject, except in reply, or, with the permission of the board, in explanation. He submitted, also, that if they degenerated into a loose, conversational style of discussion, they would fritter away much valuable time, lessen their usefulness, and lower their dignity as a corporate body and the exponents of the representative principle. They had, therefore, individually and collectively, a character to sustain; and he hoped they would so conduct their business as to give him small trouble in presiding over them, and in a manner which would invest their proceedings with dignity. At this moment they stood pre-eminently before the country as a representative body, and he confidently hoped that the great principle of local self government and of representation, which they embodied, would never suffer or miscarry in their hands. (Cheers.)

On the motion of Mr. CHALMERS, seconded by Mr. TURNER, the steps taken by the president, as explained in his address, to protect the property vested in the board, and to continue the functions of the sluicekeepers, pending the transfer of duties and interests from the Metropolitan Commission of Sewers to themselves, were unanimously approved; and such approval was ordered to be recorded on the minutes.

The HONORARY SECRETARY read a letter from Sir B. Hall acknowledging the vote of thanks accorded to him by the board at their last sitting for the temporary use of Burlington House for holding their meetings, and stating that the accommodation there afforded to them would be continued until the 21st of January, on which day it would be required for the purposes of the Government.

The report of the special committee appointed at the preceding meeting of the board, to make certain necessary preliminary arrangements before the present meeting was convened, was brought up and read. It recommended that it be referred to a committee to choose an appropriate device for the common seal of the board, with authority to order the engraving of such a device as might be approved by them. It also recommended that, in order to prevent dangerous consequences to the public that might result from any interruption in the supervision of the existing sewers, Mr. Bazalgette be requested to take charge of all the main sewers and other works the management of which devolved upon the board, with power to obtain such temporary assistance as might be necessary to enable him to discharge that duty. The committee likewise suggested that a secretary, treasurer, engineer, and accountant be appointed by the board without delay.

On the motion of Major LYON, the recommendations in the report of the committee were taken *seriatim*; and a short conversation ensued in reference to that which suggested the appointment of a committee to consider the device to be employed in the common seal of the board.

Mr. HAWKES and Mr. D'IFFANGER expressed themselves as averse from the appointment of committees, except under special circumstances.

Major LYON, on the other hand, thought the board was so large that it would not be equal to the transaction of all its varied duties without the assistance of committees in certain cases.

Mr. LOWMAN TAYLOR submitted this was a subject which the board itself might deal with at once, without the assistance of a committee. He added, for example, that if the Royal Arms were to be used as the device on their common seal, the board might settle the matter at once.

Mr. WILKINSON, the honorary secretary, said he had been in correspondence with the department of the Board of Works on the subject, who had referred him to the Treasury, which department had in its turn referred him to the Home-office; but from none of those offices could he receive any official sanction to adopt the Royal Arms. He was at length referred to the Marshall's office, where the difficulty experienced in finding a device for the seal was such as to induce him to proceed no further in the matter in that quarter. (This statement caused some laughter.)

It was eventually agreed by the board that Mr. D'Iffanger, Mr. Hunt, and Mr. L. Taylor, should be a committee to consider and report upon an appropriate device for the seal.

Mr. OFFOR then moved a resolution, which was seconded by Mr. CARPMAEL, adopting the recommendation of the committee, that the temporary charge of the sewers be confided to Mr. Bazalgette, the chief engineer of the late Metropolitan Commission of Sewers.

Mr. D'IFFANGER said, he had a great objection to their appointing any gentleman to be engineer-in-chief for a time—(hear, hear)—lest by so doing the board might feel themselves under any obligation to appoint him afterwards to fill that office permanently (Loud cries of "No, no!") That was, at least, his impression; and he thought it was important that they should be perfectly free to act in the matter whenever they might be called on to make the permanent appointment.

Mr. NICHOLAY, as one of the committee, said, in recommending Mr. Bazalgette to superintend for a time the works now in progress, and which would suffer seriously without such supervision, they never dreamt for a moment that his appointment as chief engineer to the board would follow from that circumstance. The work of superintendence was one of great responsibility. Some one would have to be charged with it; the committee recommended Mr. Bazalgette as a fit person for undertaking the duty, but in so doing they did not conceive they had thereby given him any pledge whatever that he would subsequently be appointed their chief engineer. (Hear.)

Mr. DOULTON said, the responsibility sought to be imposed upon Mr. Bazalgette was too great for one man to bear, and submitted that the better course would be to continue the superintendence of the district sewers in the hands of the district engineers, who were most familiar with their management. He would, therefore, support Mr. Chalmers' amendment.

Mr. LOWMAN TAYLOR objected to the board taking the responsibility upon them of a number of temporary appointments. (Hear.) He would recommend them to appoint one single man for the discharge of this particular duty in whom they had confidence; and, if they thought the engineer-in-chief of the late Commission of Sewers was not equal to it, let them appoint another, in whose practical knowledge and experience they had entire confidence, and who, they believed, would discharge his duties faithfully. (Hear, hear.)

Mr. TURNER said, as it was clear that they must appoint some head engineer to perform the duty in question—and that immediately—to prevent injury accruing to the public works, he would support the appointment of Mr. Bazalgette, believing him to be a person unexceptionably competent; but without meaning thereby for a moment to imply that he would afterwards vote for his permanent appointment to the office.

Mr. Deputy HARRISON said, it was all-important that the board should appoint a gentleman to this work who knew more about our complex system of sewers than perhaps any other, and he wanted to put the responsibility of the supervision of those immense public works upon the shoulders of that gentleman, who, he believed, was well able to bear it. He hoped on their first day of meeting they would not assign six or seven men to discharge a duty which one man was well able to perform. (Hear, hear.)

The amendment of Mr. Chalmers was then put and lost, and the original motion of Mr. Offer declared to be carried.

On the recommendation of the committee to the board to appoint without delay a secretary, treasurer, engineer, and accountant, being read by the president,

Mr. WILKINSON, the temporary honorary secretary, complained of a paragraph in a Sunday newspaper which had devoted a considerable part of its space to the proceedings of this board, imputing interested motives to him in assuming the post of honorary secretary on the first meeting of the board. He reminded the meeting that it was on the invitation of Sir John Shelley, seconded by Mr. Nicholay, and sanctioned by the unanimous vote of the board, that he had ventured to take upon himself the duties, for a time, of their secretary. (Loud cries of "Hear, hear.") He had never contemplated for one moment appearing before them as a candidate for office in any shape whatever. The subject of nominating him, however, to the office of secretary had been mentioned to him by some of his friends in the board, and to them he had replied, that he was not a candidate for office, but, if called on by a resolution of his colleagues to take office, he or any one, he thought, would find it difficult to refuse such an invitation. He was still of the same opinion, and repeated that he was not a candidate for office at all. With these observations, he trusted they would now allow him to retire from the office of honorary secretary, which he had accepted under the circumstances he had stated. (No, no.)

Mr. WILKINSON persisted in retiring, notwithstanding the strong feeling of the board that he should continue to discharge the duties of secretary, and Mr. DREW, in the emergency, volunteered to supply his place.

On the motion of Mr. Deputy HARRISON, it was eventually referred to a committee, consisting of Messrs. Collinson, Lowman, Taylor, Nicholay, Offor, Howes, Corrie, Harrison, Drew, Turner, Carpmael, Barnet, Wallis, Chalmers, Ware, and Pascall, to consider and report what, in their opinion, should be the salaries and duties of the engineer-in-chief, clerk or secretary, treasurer, accountant, and superintending architect.

RESIGNATION OF SIR JOHN SHELLEY.

The PRESIDENT read the following letter which he had that day received from Sir John Shelley, announcing his retirement:—

25, Park Lane, Jan. 1, 1856.

Sir,—I have the honour to send to you, as chairman of the Metropolitan Board of Works, my resignation of the office of the representative of the parish of St. James at that board.

A circumstance having occurred at the ballot when my appointment took place, in consequence of which the majority in my favour has been disputed, and an unsatisfactory feeling having been created thereby among the members of the vestry, I have, after much consideration, arrived at the conclusion that I shall best consult the interests of that important district by resigning my appointment. I therefore take the earliest legal opportunity of carrying out this determination, to which I pledged myself in writing to the vestry of St. James's previously to the last meeting of the Metropolitan Board of Works.

I request you to read this letter at the meeting of the Metropolitan Board this day, in order that the true reasons for my resignation may be made apparent.

I am, Sir, your obedient servant,

To the Chairman of the Metropolitan Board of Works. JOHN VILLIERS SHELLEY.

On the motion of Mr. FEW, the letter was ordered to be entered on the minutes, and an official communication made to the parish of St. James, Westminster, of the resignation of Sir John Shelley as their representative at the board.

NEW ELECTION FOR SOUTHWARK AND GREENWICH.

The PRESIDENT, in reply to Mr. Davis, said he had communicated to the vestry clerks of Southwark and Greenwich his election to the office of president to the board, by which his seat at the board had been vacated for those two districts, and steps would be forthwith taken to select two other representatives in his stead.

FUTURE PLACE OF MEETING OF THE BOARD.

A conversation ensued in reference to the place where the board should hold its meetings after the 21st of January, when their present temporary accommodation in Burlington House would cease; and it having been suggested that the Corporation of London might be disposed to place their Common Council Chamber at the disposal of the board for holding their meetings for a limited time, a committee of seven members was appointed, on the motion of Major LYON, seconded by Mr. HAWKES, to consider and report on the best means of providing future accommodation for the meetings of the board; and on the motion of Mr. COLLINSON an official application was directed to be addressed to the Corporation of London for the use of their Common Council Chamber as the place of meeting of the board for a limited period after the 21st of January.

The board then adjourned until Monday the 7th instant.

DEPTFORD ARBITRATION.—The sittings in this protracted inquiry were resumed on Monday, the 7th inst., at the King's Arms Hotel, Westminster, before Thomas Hawksley and R. P. Spice, Esqrs., arbitrators, and H. A. Merewether, Esq., umpire, who are to sit daily till Friday next, when an adjournment will take place. An extension of the period for making the award, to Feb. 15, has been agreed to.

BRECON.—Well-founded complaints having for many years existed with regard to the supply of gas in this town, the inhabitants have formed a new company under the Limited Liability Act, and have agreed to purchase the old works at a valuation, in preference to extinguishing them by competition. Mr. T. G. Barlow has been appointed to value them on behalf of the new company, and Mr. Spice on behalf of the vendors, and their award was made on the 2nd instant. The new company enter into possession on May 10 next.

CONSTANTINOPLE.—Numerous combinations have been suggested for effecting a thorough sanitary reform of the capital, by supplying it with gas and water, and completely draining and paving it. Several speculators have already sent out agents with the view of collecting information upon which to base their proposals.

MARSEILLES.—The *Constitutionnel* says that the prices at which Messrs. Mirès and Co. have undertaken the supply of this city with gas for 50 years, are 17 centimes per cubic mètre (3s. 10d. per 1000 feet) for the public lights, and 33 centimes per mètre (7s. 4d. per 1000 feet) for the private consumers, the latter having the faculty of burning by contract upon a tariff regulated by the meter price. The new company engages to raise a capital of 3½ million francs (£140,000), and after the first 16 years to divide the profit realised exceeding 10 per cent. between its shareholders and the municipality. It also engage to increase the length of mains now in use from 68,000 to 100,000 mètres, and to abandon the whole property to the town, without indemnity, at the termination of its contract.

Price Current.

CASTINGS, per Ton.
Average Weight of Cast Iron Gas Pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow	Newcastle.	Wales.	Yorksh., Derbysh., and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1.	4 10 0	3 15 0	4 0 0	4 5 0	4 10 0
1¼ and 2 inches Socket Pipes	8 10 0	7 5 0	7 15 0	7 15 0	8 0 0
2½ and 3 do. do.	8 5 0	7 0 0	7 10 0	7 10 0	7 15 0
4 and 5 do. do.	8 0 0	6 15 0	7 5 0	7 5 0	7 10 0
6 inches and upwards do.	7 15 0	6 10 0	7 0 0	7 0 0	7 5 6
Retorts, 1st fusion, hot blast	7 10 0	...	7 10 0	7 10 0	7 10 0
Do. 2nd fusion, cold blast	8 5 0	...	7 15 0	7 15 0	8 0 0
Tank Plates, ⅜ thick and above	8 10 0	7 0 0	8 5 0	7 10 0	9 0 0

COALS.

NEWCASTLE.	s.	d.		SCOTCH CANNEL.			
Unscreened.				Boghead ....at Leith	28	0	,,
Whitwell Primrose	7	6	per ton.	Kirkness.....best	23	0	,,
Pelton } Medomsley }	8	0	,,	Capeldrae, first quality	20	0	,,
Pelaw	8	3	,,	Ditto, second quality	12	6	,,
Burnhope } Eighton Moor } New Pelton } Peareth } South Pelaw } Washington Hutton }	8	6	,,	Lesmahago at Glasgow	25	0	,,
				Ditto at Leith	27	6	,,
				Arniston	22	0	,,
				Wemyss ...(at the pits)	16	0	,,
				Bridgeness } Kinneil }	17	0	,,
South Peareth				Knightswood	18	0	,,
Ramsay's Cannel	18	0	,,	Lochgelly } Lumphinan }	12	6	,,
Cowen's Cannel	18	0	,,	Methill	11	0	,,

FIRE GOODS.
Best Bricks, 60s. per 1000, at Newcastle.
Do. Clay, 12s. per ton do.

LEAD.
Soft pig, £25 to £26 per ton.

WROUGHT IRON TUBING, subject to 35 per cent. Discount.

	2 inches.	1½ inch.	1¼ inch.	1 inch.	¾ inch.	½ inch.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent welded tubes, from 2 to 12 feet, per foot	1 8	1 0	0 10	0 7	0 5	0 4½
Ditto .... ,, 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting pieces, or long screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, springs, and elbows, wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing sockets, caps, plugs, and nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2 quart	15 0	14 0	13 6	13 0	12 0	

FREIGHTS, per Ton.

Coastwise—Newcastle.	s.	d.	*Foreign.*	s.	d.
Chatham & Roches.	8	9	Boulogne	11	6
Cork	13	0	Barcelona	34	0
Dover	9	3	Bordeaux	22	0
Dublin	14	0	Cadiz	17	6
Exeter Quay	11	3	Calais	11	6
Folkestone	9	0	Dieppe	14	6
Hastings	10	6	Genoa	34	0
London	8	9	Hamburg	13	0
Lowestoft & Yarmth	6	6	Havre	14	0
Lynn	8	0	Leghorn	33	6
Portsmouth	11	0	Lisbon	21	0
Plymouth	12	0	Rotterdam	13	0
Whitstable	9	6	Stettin	16	6
Weymouth	10	0	Trieste and Venice	39	0

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WANTED, by a person thoroughly experienced in the Accounts of Gas Companies, an appointment as OFFICE MANAGER, or SUPERIOR IN-DOOR CLERK. Address A. Z., Mr. Hebert's, 88, Cheapside, LONDON.

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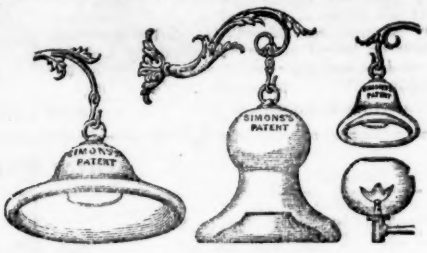

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JAMES FERGUSON and CO., Lessees of the Auchinheath and Craignethan Gas Coalfields (the most extensive and valuable in the parish of Lesmahago), respectfully intimates to the Managers of Gas Works and Consumers of Gas Coal, that he is prepared to ship the best quality of the above well-known COALS at Glasgow or Leith; and also to deliver them at the railway stations upon, or connected with, the Caledonian Railway, to any extent which may be required.

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JAMES FEATHERSTONE,

ENGINEER,

Manufacturer of GASHOLDERS, IRON ROOFS, and every description of Gas Apparatus.

ALLIANCE IRON WORKS,

CLAYTON, near MANCHESTER.

GREAT EXHIBITION PRIZE MEDAL, AND CERTIFICATE FOR GAS METERS, CLASS XXII., No. 424.

PADDON AND FORD,

PATENT GAS METER & APPARATUS WORKS,

GRAY'S-INN-ROAD, LONDON,

Manufacturers of WET and DRY GAS METERS, STATION METERS, GOVERNORS, EXPERIMENTAL APPARATUS, GAS STOVES, LANTERNS, Iron Barrel and Fittings, Main Cocks, &c. &c.

Contractors for the erection or alteration of Gas Works; and every description of Apparatus required in Gas Works supplied. Competent men sent into the Country, and References given to work done.

PADDON and FORD are enabled, from the successful character of their workmanship and material, to guarantee the accuracy and durability of their meters, either WET or DRY, for a stated period.

TO GAS COMPANIES.

J. W. GRAZEBROOK,

75, OLD BROAD STREET, LONDON,

Having applications for New and Second-hand Gas Apparatus, would be obliged by those Companies having Apparatus to dispose of, to send particulars. And Companies requiring Apparatus are solicited to apply.

PIPES, RETORTS, TANKS, GASHOLDERS, &c. on Shortest Notice.

STOURBRIDGE and NEWCASTLE FIRE GOODS.

CONTRACTS TAKEN.

GEORGE and SAMUEL CUTLER,

GASHOLDER MAKERS,

No. 8, WENLOCK-ROAD, CITY-ROAD,

LONDON.

Contracts for Tanks, Gasholders, Roofs, Purifiers, and all descriptions of Gas Apparatus executed on the most reasonable terms. Improved Slide Valves, Steam, and Range Boilers, and Smiths' Work, of the best materials and workmanship.

TO GAS COMPANIES.

THE BRYMBO COMPANY,

NEAR WREXHAM,

Manufacture Cold Blast Retorts and Pipes of a very superior quality, and also ship good Gas and Steam Coals at Saltney, on the River Dee, and at Birkenhead.

Brymbo Iron Works and Colliery, North Wales.

London agent, Mr. J. W. Grazebrook, 75, Old Broad-street.

WHITWELL PRIMROSE GAS COAL.—These excellent Gas Coals are wrought from the HUTTON SEAM *only*, and can be shipped either at the South Dock, SUNDERLAND; or Old Harbour, HARTLEPOOL; or Brandling Drops, SOUTH SHIELDS; on application to the WHITWELL COAL COMPANY, Sunderland.

PATENT FIRE-CLAY RETORTS.—O. BROTHERS and COMPANY, Manufacturers of O. Brothers's Patent, beg to state that these Retorts, being made in one entire operation, and in one piece, of any required shape, length, breadth, and height, are not liable to cracks and fissures, of which there is a just and general complaint; and consequently superior to, and cheaper than, any hitherto manufactured.

GREAT REDUCTION IN PRICES—30 per cent. cheaper than any other Clay Retorts manufactured.

Shape.	Sizes.	Length.	Thickness.	Price at Railway Station, Blackburn.	Price per foot run of any required length, at Blackburn.
		feet.	in.	£ s. d.	s. d.
Dee	12 in. by 12 in.	8	2½	2 0 0	5 0
,,	14 in. by 12 in.	8	2½	2 4 0	5 6
,,	16 in. by 13 in.	8	2½	2 10 0	6 3
,,	18 in. by 14 in.	8	2½	2 16 0	7 0
,,	19 in. by 13 in.	8	2½	2 16 0	7 0
,,	20 in. by 14 in.	9	2½	3 7 6	7 6
,,	24 in. by 15 in.	8	2½	3 12 0	9 0
Round	15 in. by 15 in.	8	2½	2 10 0	6 3
,,	15 in. by 15 in.	10	2½	3 2 6	6 3
,,	18 in. by 18 in.	8	2½	3 0 0	7 6
Oval Retort	18 in. by 12 in.	8	2½	3 0 0	7 6

All other sizes and shapes in proportion, to order.

References and further particulars may be obtained on application to the Patentee, Gas Works, BLACKBURN.

F. & C. OSLER,

44, OXFORD-STREET, LONDON;

Manufactory—Broad-street, Birmingham,

MANUFACTURERS OF GLASS CHANDELIERS, GLASS LUSTRES, TABLE GLASS, &c. &c.

ELEGANT CRYSTAL GLASS CHANDELIERS, FOR GAS

(Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c.; suitable for DRAWING-ROOMS and BALL-ROOMS. The more extensive use of GAS in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.

THEATRES, CONCERT, ASSEMBLY, AND BALL ROOMS LIGHTED BY ESTIMATE ON THE LOWEST TERMS.

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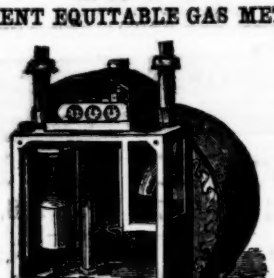
VOL. III. of the JOURNAL of GAS-LIGHTING, price 32s. 6d., bound in cloth and lettered. Cloth cases for binding may be had at 2s. 6d. each. G. HEBERT, 88, Cheapside.

By Her Majesty's Royal Letters Patent.

KAY'S

PATENT EQUITABLE GAS METER.



MANUFACTURED BY

WILLIAM COWAN,

BUCCLEUCH STREET, EDINBURGH.

The attention of Gas Companies is respectfully directed to the above important invention in Gas Meters.

The well-known fraud of "tilting" the Meter on one side, to enlarge the capacity of the measuring chambers, or allow the gas to pass unregistered, is entirely prevented by this invention; which simply consists in placing the Outlet on the front of the Meter, and inserting a Dip-tube, which immediately shuts off the gas the instant the Meter is thrown off its level.

Another important advantage in this arrangement of the Outlet is, that the Measuring Wheel is entirely protected from frauds, by being pierced or otherwise tampered with.

The above alteration of the Outlet does not in any way affect the present arrangement of the Fittings, this Meter being adapted to the Fittings at present in use.

SHEARS AND SONS'

PATENT DRY GAS METERS

Are supplied to Gas Companies and the Public as the best and simplest Dry Gas Meters in use. They are acknowledged to be of first-rate workmanship and accuracy of registration.—Shears and Sons continue to supply these Meters on the most favourable terms; and they also manufacture Wet Gas Meters, to which they apply their Patent Indices.

BANKSIDE, LONDON.

ADDISON POTTER,

WILLINGTON QUAY,

NEAR NEWCASTLE-UPON-TYNE,

Manufacturer of Clay Retorts, Fire Bricks, and every description of Fire Clay Goods.

WHITEHOUSE and CO.,

GLOBE PATENT TUBE WORKS, WEDNESBURY,

Beg to draw the attention of Engineers and Managers of Gas Works to the superior quality of the Article they manufacture, both in respect of the iron employed, and the perfect manner in which it is welded; in proof of which they can refer to the testimonials of the most eminent Gas Engineers, and the experience of the principal of the large Gas Companies of the kingdom.

Orders promptly executed.

IMPROVED

SELF-LUBRICATING GAS VALVES,

Used in nearly one hundred gas works in Great Britain and the Continent, and are esteemed for their strength, superior workmanship, non-liability to damage, never sticking, oiling themselves, always working free in tar, lime, or gas, never falling down, and their very legible index of opening of valve—advantages only possessed by these valves.

SELF-REGISTERING GAUGE COLUMN

To regulate the pressure in the Street Mains, showing at one glance the valve on the facing, area of the opening, size of pipe the gas passing will fill, and the pressure on the works and on the mains. This supersedes the necessity of the expense of a governor for small works, and should be placed on the by-pass, where a governor is used in large works. IT IS NEXT TO IMPOSSIBLE FOR THE VALVE MAN TO PUT A TOWN IN DARKNESS WITH THIS APPARATUS, and is a great ornament to the Valve-room.

IMPROVED ANNULAR CONDENSER.

Ensures perfect condensation with smallest weight of iron, and standing on the smallest space, the whole of the parts being instantly accessible. They are in use in various Gas Works, small and large, and passing 20,000 to 600,000 cubic feet per 24 hours.

DRY LIME AND OXIDE OF IRON PURIFIERS.

Perfect simplicity of action and improved Sieves, which are strong and very lasting, and the wires, when worn out, may be replaced in an hour and a half by any handy man in a gas work. The undersigned have made them, and have patterns for every size from 3 feet to 18 feet square.

GASHOLDERS, SCRUBBERS, &c.

CHARLES WALKER AND SONS,

LITTLE SUTTON-STREET, LONDON, AND MIDLAND IRON WORKS, TIPTON, STAFFORDSHIRE.

Applications for Prices, &c., to be addressed to their London Office, as above.

PATENT FLEXIBLE GAS TUBING.

JAMES LYNE HANCOCK'S

Vulcanized Indiarubber Hose Pipes and Tubing. Manufactory (and Warehouse), Goswell-mews, Goswell-road, London.

Gas Companies, Engineers, Gas Fitters, and the Trade generally, are respectfully informed this Tubing is now manufactured to any size, from ¼ inch bore and upwards, in 100-feet lengths, and perfectly cylindrical, either with or without a spiral wire inside.

VULCANIZED GLAZED FLEXIBLE TUBING, from ¼ inch up to 1 inch diameter, made in 24-feet lengths; or, covered with silk or worsted, up to 100 feet.

VULCANIZED HOSE, for FIRE ENGINES, BREWERS' USE, and for standing great pressures, (Rubber and Cloth combined), made to any length or size to fit the necessary screws, &c.

VULCANIZED INDIARUBBER AIR-TIGHT BAGS, made any size, for Gas Mains, with flexible tubes attached, and fitted with stopcocks complete.

CARTER'S PATENT SAFETY GAS VALVES.

THOMAS LAMBERT and SON,

PATENTEES AND MANUFACTURERS,

SHORT STREET, NEW CUT, BLACKFRIARS, LONDON.

The Bank of England is fitted entirely with these Valves, from the smallest branch to the largest main pipe.

The following, among numerous testimonials, will be found very satisfactory:—

"The British Gaslight Company's Office, No. 105, Broad-street, Ratcliff, London, June 10, 1846.

"Gentlemen,—In reply to your inquiry, I have to state that 'Carter's Patent Gas Valve' has been used by this company and by the fitters of the district extensively for seven years past. It was adopted to obviate the inconvenience of setting fast, so prevalent with the conical metal plug-cocks, and has been found to answer the purpose intended.

"I have recommended its use in several provincial towns with which I am professionally connected, and have not received any complaint of its having failed in any respect of performing satisfactorily all that is required of it.—I am, gentlemen, yours respectfully,

"GEDDIE PEARSE.

"Messrs. Lambert and Son, Lambeth."

TO GAS COMPANIES, GAS PROPRIETORS, AND GAS ENGINEERS.

JOHN VICKARY

begs to call the attention of the above to his improved METALLIC CASE GAS-METER, an improvement which has met with entire approbation from the various Gas Companies and Engineers to whom he has introduced it, and acknowledged to be the greatest improvement that has been made since the year 1832; at which period a metal was introduced for the construction of the Drum, Syphon, and Float, capable of resisting any impurities arising from either gas or water, which has been found to answer every expectation; as, in repair, Drums of the above date are found in perfect and good condition, when the Outer Case, Valve-box, Inlet-pipe, &c., are quite destroyed and entirely past repair.

J. V. has introduced a coating or lining of the above metal in the Outer Case, Valve-box, Inlet-pipe, &c., thereby rendering the whole as durable as the Drum, as not a particle of tin plate is exposed to the action of either water or gas; and preventing the possibility of gas passing above the water line through the front into the body of the Case to the outlet unregistered, which frequently occurs. When the Meter has been in use for any length of time it is generally found that rust or decay takes place *above* rather than under the water line, which is only discovered when they need repair. Also the Inlet-pipe and Valve-box are generally found quite decayed, which cannot happen in the above improvement.

J. V. feels confident that the above will be found a most desirable and perfect instrument, as it contains all other improvements of utility that have been introduced up to the present time.

The most strict attention is given to the workmanship as well as the registration of every Meter, to render them perfectly accurate.

Station Meters, Governors, &c., made on the shortest notice, as well as Gas Cooking Apparatus of every description, Gas Baths, &c.

Meters sent at the lowest London prices.

Carriage paid to any part of England.

WEST OF ENGLAND GAS METER AND GENERAL GAS APPARATUS MANUFACTORY, 84, FORE STREET, EXETER.

NEW HOUSES OF PARLIAMENT.

DEFRIES'S Gas Stoves, Ranges, and BATHS, in action for two years at the above building. A great variety in stock upon the same principle. Gas Baths from £7, by which a warm bath may be obtained for 1½d. Gas Cooking and Heating Stoves, from £1. Defries's celebrated Dry Gas Meters —upwards of 60,000 in use.

Testimonials at the Office, 145, REGENT-STREET, or at the Manufactory, NEW-ROAD, St. Pancras, near Fitzroy-square.

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PROPRIETORS OF

BEST CLASS-HOUSE POT AND CRUCIBLE CLAY.

MANUFACTURERS OF

FIRE BRICKS, GAS RETORTS, &C.

AMBLECOTE FIRE CLAY AND BRICK WORKS,

STOURBRIDGE.

Late in the occupation of I. and W. King.

Originally J. Pidcock, Esq.

JAMES PINCHBECK,

GAS METER MANUFACTURER,

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ISLINGTON, LONDON.

Begs respectfully to announce to Gas Companies and Fitters, that from upwards of 20 years' practical experience, he is enabled to supply a METER combining correctness, durability, and economy.

N.B.—Repairs on the lowest scale.

JOSEPH CLIFF,

WORTLEY FIRE-BRICK WORKS, near LEEDS.

FIRE-CLAY RETORTS, OF ANY SIZE OR SHAPE, SUPPLIED ON SHORTEST NOTICE.

These Retorts are used extensively in the Gas Works of Leeds, Hull, Liverpool, Bradford, Rochdale, and other towns, where they have been tested side by side with those of Stourbridge, Newcastle, and other makes, and proved themselves a superior article.

Eminent Gas Engineers bear testimony that they are the BEST FINISHED AND MOST CORRECT IN FORM of any in the kingdom. Their surfaces are, by the peculiar method of their manufacture, unusually smooth, close, and FREE FROM SURFACE CRACKS; thus, in a great measure, preventing leakage and the adhesion of carbon to their interior surfaces.

To meet the great increase in demand, extensive enlargement of premises and the fitting up of more perfect apparatus have been effected; and gas engineers may rely with confidence on their orders, to any extent, being promptly and satisfactorily executed.

N.B.—FIRE BRICKS, TILES, AND OTHER FIRE GOODS, OF UNEQUALLED QUALITY.

CAST-IRON Retorts, Socket Pipes, with Syphons and all requisite Connections, Lamp Columns, Wrought Iron Tubing, Valves, Street Lamps, Sight Holes, Furnace Doors, Ash Pans, Charging and Coke Shovels, Iron Pails and Coke Barrows, Cross Bars, Fire Pots, Pumps, Iron Borings.

PURIFIERS, CONDENSERS, and SCRUBBERS erected complete, or the materials supplied; with every description of goods in use by Gas Works, in stock, on wholesale prices, at

LYNCH WHITE'S,

Old Barge Iron Wharf, Upper Ground-street,

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GAS EXPLOSIONS Prevented by using the Tubes and Fittings Manufactured by JOHN RUSSELL and CO.,

whose Goods are all well Tested and Warranted.

The first manufacturers of Lapwelded Flues for Locomotive and Marine Boilers.

The FIRST PRIZE of the Paris Great Exhibition was awarded to them for Gas Tubes and Fittings, and Tubes for Marine and Locomotive Boilers.

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BRYAN DONKIN and CO.'s improved GAS VALVES have been adopted by numerous Gas Companies in England and abroad, and their advantages and great security fully proved. Very large numbers are in use. Prices from 11s. to 14s. per inch diameter.

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Engineers, near Grange-road, BERMONDSEY.

GAS MANUFACTURE.

GEORGE BOWER, Vulcan Foundry, ST. NEOT'S, HUNTS, will be glad to prepare Plans, Specifications, and Tenders, for the lighting of Towns, Manufactories, and Private Houses with Gas.

References can be given to both private and public works.

His Patent Combined Apparatus, which forms the Hydraulic Main, Condenser, Scrubber, and Purifier, in one vessel, is especially adapted for works up to 500 lights.

His patent ridged, or rib-bottomed retort is applicable to works of any magnitude, the object of which is to carbonise more rapidly than by the ordinary flat-bottomed retort.

Manufacturer of Gasholders, Gas Meters, Gas Cooking and Heating Stoves, and all Apparatus connected with Gas-Lighting.

N.B.—The Combined Apparatus and Retorts will be sold separately, if required.

H. JONES, Gas Meter Manufacturer, No. 44, OLD-STREET, St. Luke's, London, begs respectfully to call the attention of Gas Companies yto his latest improvements in the WET METER, b means of which water cannot be abstracted, neither can Gas by any possibility pass through the Meter without registering.

PATENT GAS METER MANUFACTORY,

No. 66, Snow-hill, London.

WILLIAM SMITH, by the improvements he has made in the Wet Meter, and which he has secured by her Majesty's Royal Letters Patent, the accuracy of their registry is rendered certain by the introduction of the adjusting slide and hydraulic, whereby a Perfect Water Level is readily obtained, and the Hydraulic precludes the possibility of abstracting water from the meter by increased pressure or otherwise, thus surmounting the great desideratum of the Wet Meter. In his Patent Equitable Gas Meter neatness and strength are combined, the backs and fronts of the case being stamped by powerful machinery out of thick plate iron (tinned or galvanized); and the internal construction is of the best metal, which will resist the action of any impurity in the gas.

Old Meters may readily have the adjusting slide and hydraulic applied, thereby having accurate measurement assured.

Station Meters, Governors, &c., made on the shortest notice.

HULETT AND CO., 55 AND 56, HIGH HOLBORN,

PATENTEES and MANUFACTURERS of the NATIONAL GAS METER,

Beg to inform the Proprietors of Gas Companies, and the Trade generally, that, having completed their new Gas Meter Manufactory, they are now enabled to supply, with despatch, a very superior article, and can confidently warrant the same to be equal in quality and workmanship to any Gas Meter ever made. Manufacturers of

GAS CHANDELIERS, GLASS LUSTRES, HALL LANTERNS, PILLARS, BRACKETS, PENDANTS,

AND EVERY ARTICLE CONNECTED WITH

GAS FITTINGS.

GAS COOKING APPARATUS, IMPROVED ALBERT,

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D. HULETT'S IMPROVED SERVICE CLEANSER,

by which Mains, Service Pipes, and the interior Fittings of a House, may be cleaned out in a few minutes. Price 60s. net.

Sole Manufacturers of Church and Mann's Improved Photometer.

Large Pattern Books, with every description of Gas Fittings and Chandeliers, &c., with complete Book of Prices, price 10s.

Price Lists sent free, on receipt of envelope, addressed and enclosing two postage stamps.

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